



US008031463B2

(12) **United States Patent**
Yukawa et al.

(10) **Patent No.:** **US 8,031,463 B2**
(45) **Date of Patent:** ***Oct. 4, 2011**

(54) **ELECTRONIC APPARATUS EMITTING LIGHT THROUGH A UNITARY TRANSPARENT BASE CHASSIS**

(75) Inventors: **Shuhei Yukawa**, Tokyo (JP); **Masafumi Tanaka**, Tochigi (JP); **Yutaka Ogasawara**, Saitama (JP); **Tooru Kuronuma**, Kanagawa (JP)

(73) Assignee: **Sony Corporation**, Tokyo (JP)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **12/685,002**

(22) Filed: **Jan. 11, 2010**

(65) **Prior Publication Data**

US 2010/0110201 A1 May 6, 2010

Related U.S. Application Data

(62) Division of application No. 11/695,318, filed on Apr. 2, 2007, now Pat. No. 7,695,149.

(30) **Foreign Application Priority Data**

Apr. 11, 2006 (JP) 2006-108662

(51) **Int. Cl.**
G06F 1/16 (2006.01)
H05K 5/00 (2006.01)
H05K 7/00 (2006.01)

(52) **U.S. Cl.** **361/679.21**; 361/679.23; 313/582; 349/58

(58) **Field of Classification Search** 361/679.21-679.23; 313/582; 349/58-60

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,268,816	A *	12/1993	Abell et al.	361/679.09
5,406,268	A	4/1995	Fullmer	
5,450,221	A *	9/1995	Owen et al.	349/58
5,815,225	A	9/1998	Nelson	
5,980,054	A *	11/1999	Fukui et al.	362/625
6,220,741	B1	4/2001	Kawachi et al.	
6,480,372	B1 *	11/2002	Vong et al.	361/679.09
6,515,721	B2 *	2/2003	Jin et al.	349/58
6,672,734	B2	1/2004	Lammers	
6,697,250	B2 *	2/2004	Kuo	361/679.6
6,776,497	B1 *	8/2004	Huppi et al.	362/85

(Continued)

FOREIGN PATENT DOCUMENTS

CN 1578974 A 2/2005

(Continued)

Primary Examiner — Jinhee Lee

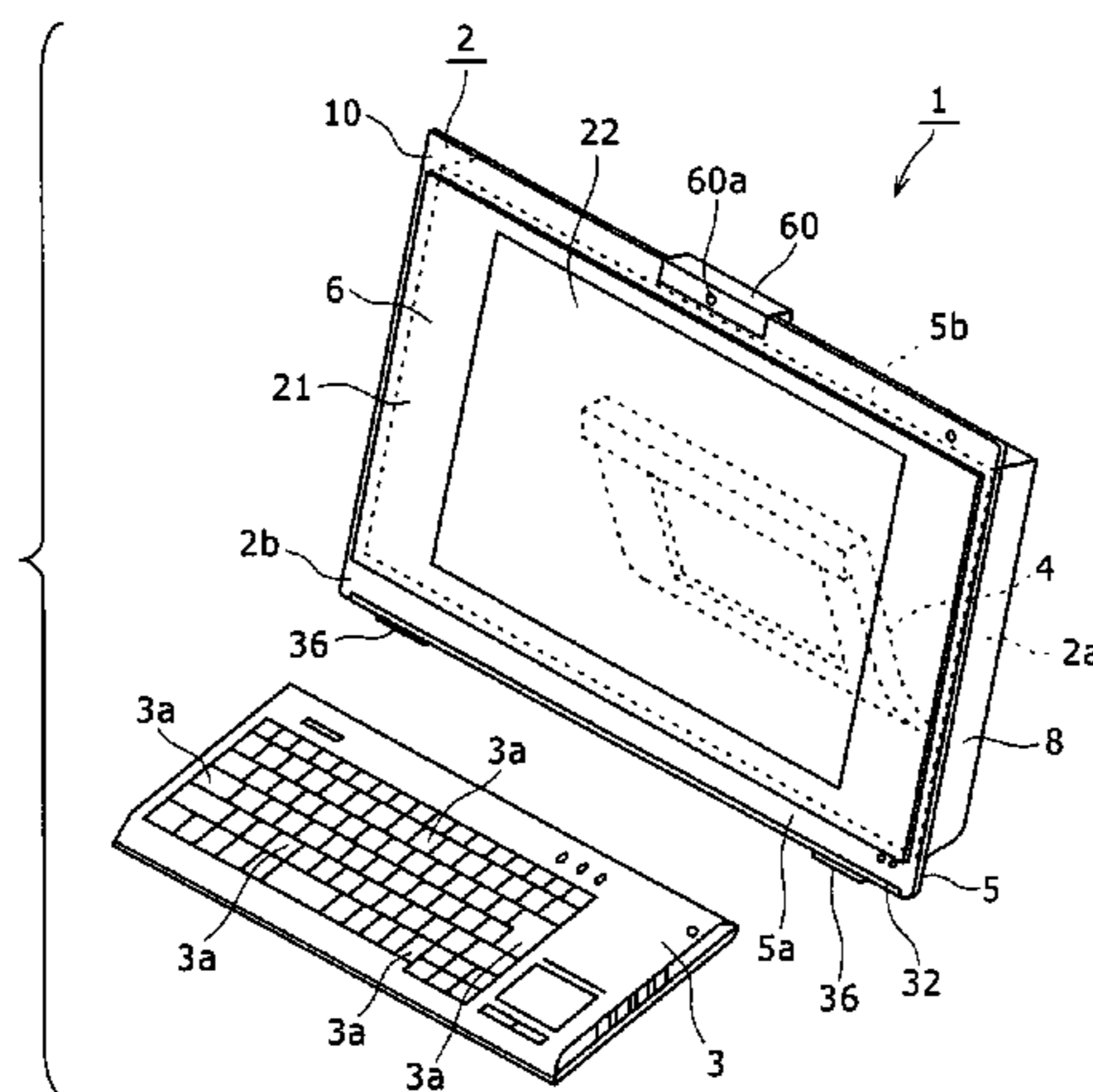
Assistant Examiner — Adrian S Wilson

(74) *Attorney, Agent, or Firm* — Oblon, Spivak, McClelland, Maier & Neustadt, L.L.P.

(57) **ABSTRACT**

Disclosed herein is an electronic apparatus, including: a base chassis formed as a unitary member from a transparent material and having two faces positioned on the opposite sides to each other and individually formed as first and second mounting face sections; a display unit having a display panel thereon and attached to said first mounting face section; a control circuit board attached to said second mounting face section; a rear cover attached to said second mounting face section and configured to cover said control circuit board; a device mounting board having a semiconductor light emitting element disposed thereon; and a luminous lamp section formed at a position of said base chassis on the outer side of said display unit and configured to receive and emit light having been emitted from said semiconductor light emitting element and passed through the inside of said base chassis.

7 Claims, 27 Drawing Sheets



US 8,031,463 B2

Page 2

U.S. PATENT DOCUMENTS

6,777,621 B2* 8/2004 Ishikawa et al. 174/260
7,120,011 B2* 10/2006 Takahashi et al. 361/679.21
7,412,163 B2* 8/2008 Wu 396/429
7,508,655 B2* 3/2009 Baek 349/56
7,695,149 B2* 4/2010 Yukawa et al. 362/26
2002/0149905 A1* 10/2002 Jackson, Jr. 361/681
2004/0233127 A1* 11/2004 Niitsu et al. 345/60
2004/0239619 A1* 12/2004 Takahashi et al. 345/156
2005/0047073 A1* 3/2005 Lo 361/683
2005/0057915 A1 3/2005 Tsai
2005/0062902 A1* 3/2005 Fukayama 349/58
2005/0243505 A1* 11/2005 Jackson, Jr. 361/683

2006/0028790 A1* 2/2006 Baek 361/681
2006/0132414 A1* 6/2006 Yiu 345/98
2006/0139271 A1* 6/2006 Okuda 345/88
2006/0152614 A1* 7/2006 Wang et al. 348/333.06
2006/0284034 A1* 12/2006 Takaji et al. 248/131
2006/0285311 A1 12/2006 Chang et al.
2007/0236873 A1 10/2007 Yukawa et al.
2007/0285886 A1* 12/2007 Huang 361/687

FOREIGN PATENT DOCUMENTS

JP 2004-61922 2/2004

* cited by examiner

FIG. 1

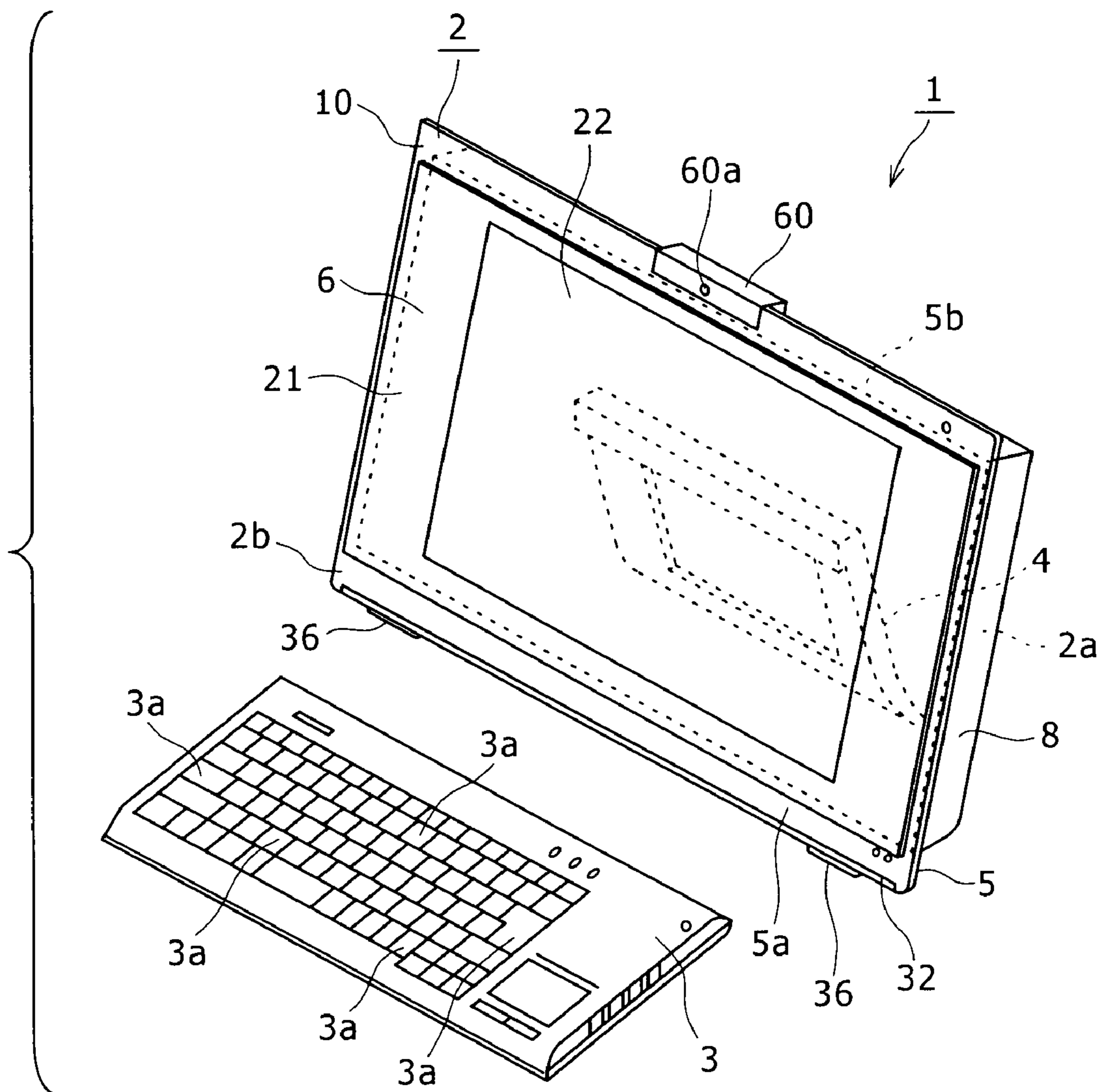


FIG. 2

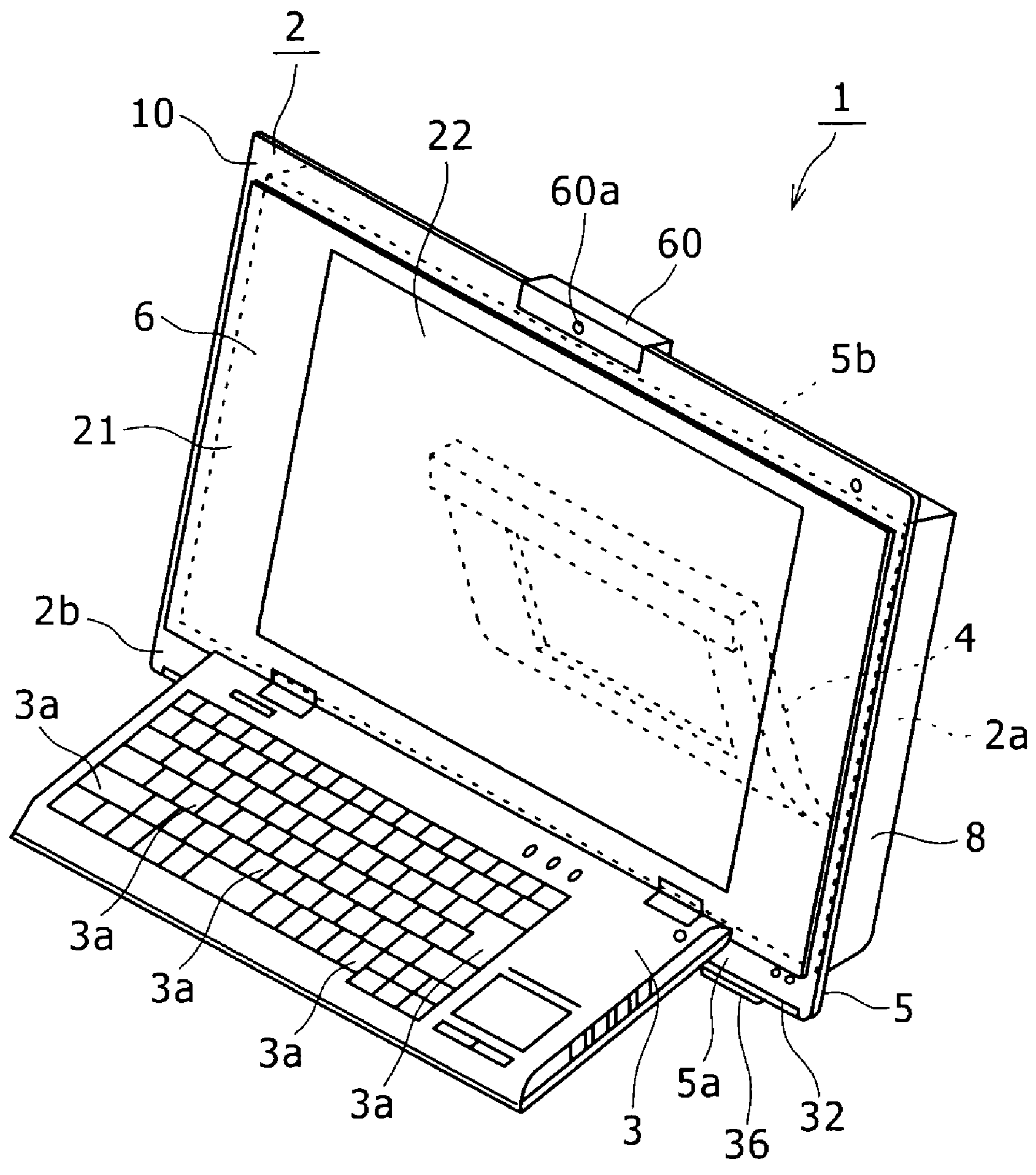


FIG. 3

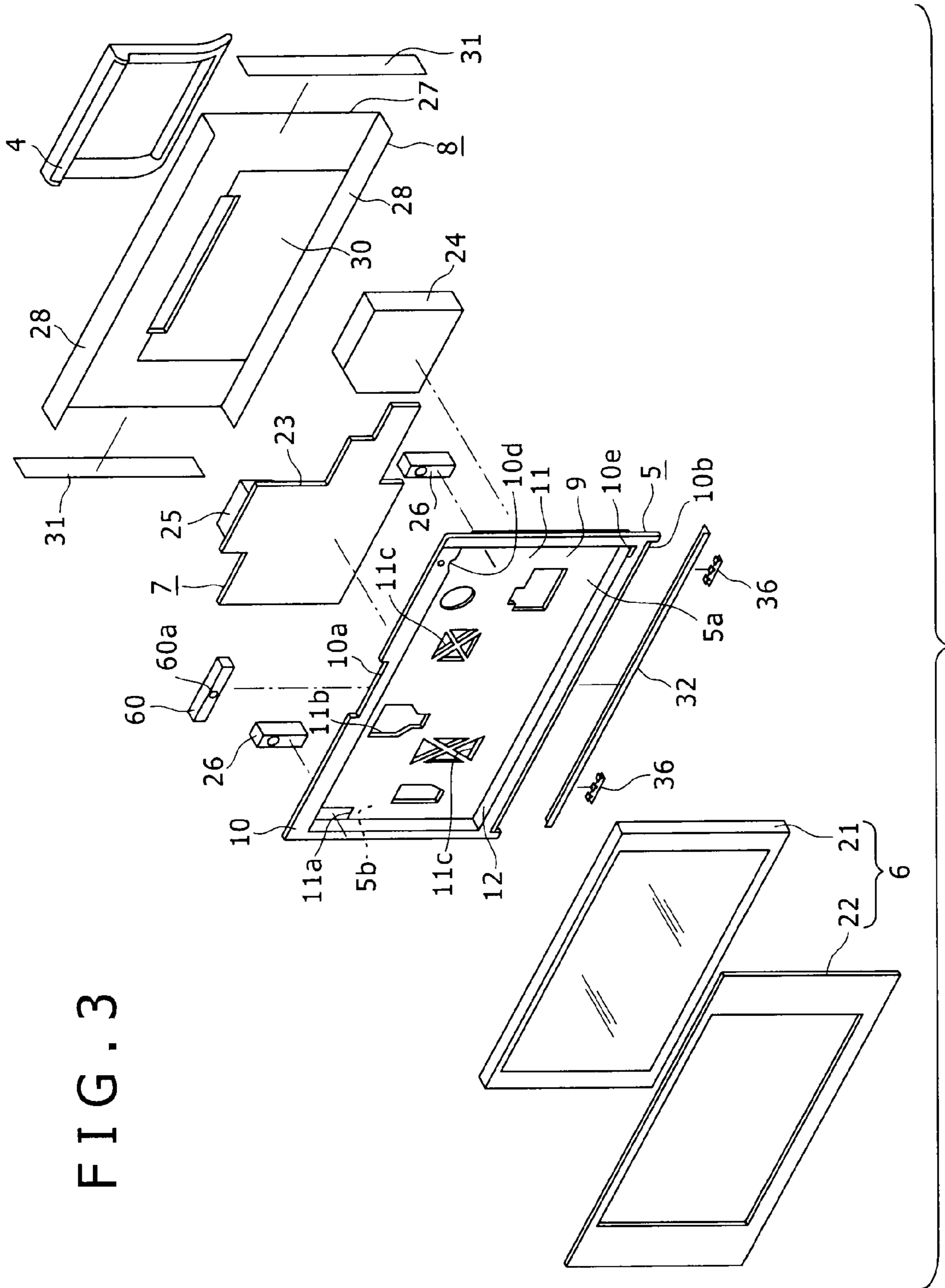


FIG. 4

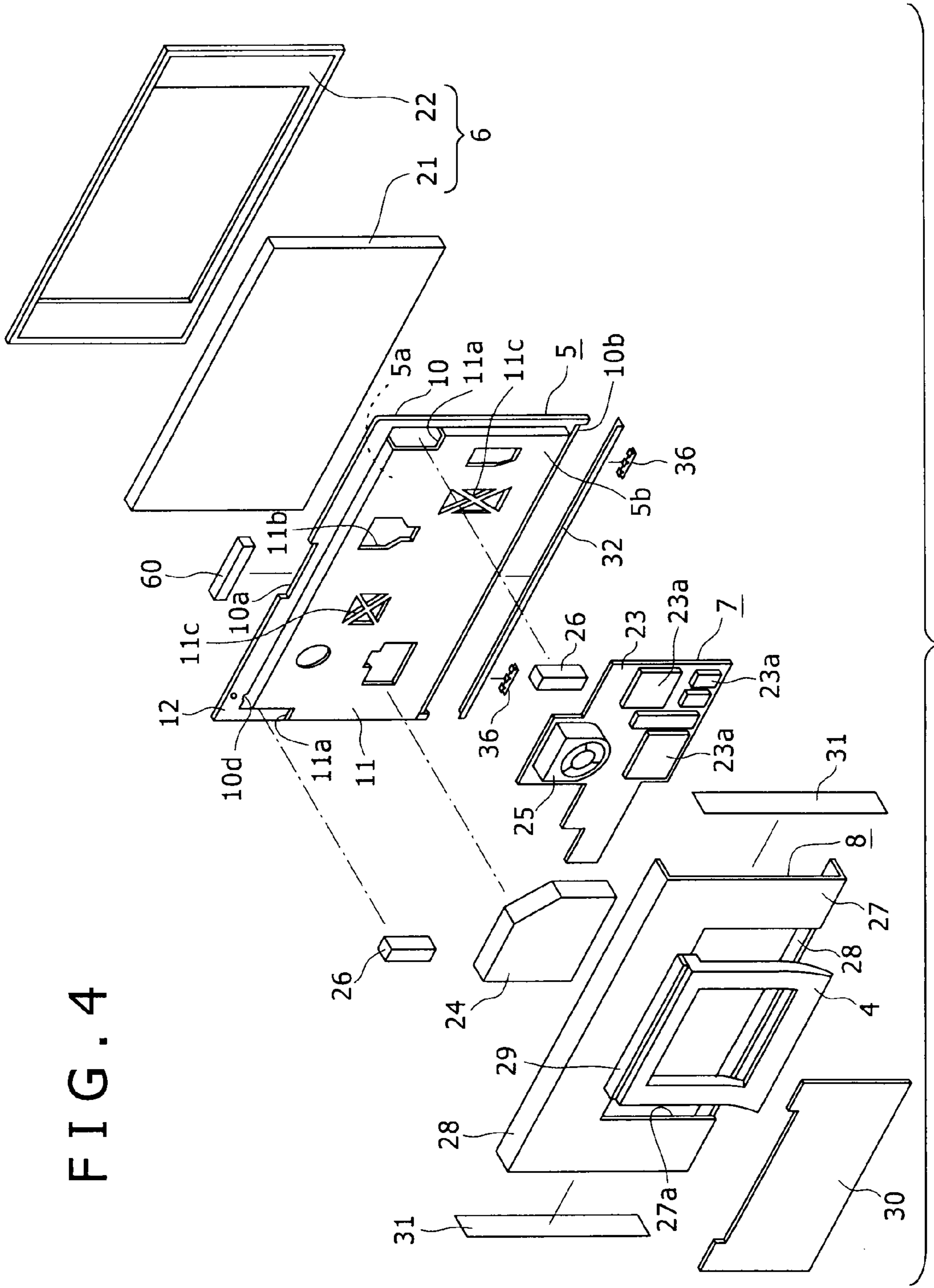


FIG. 5

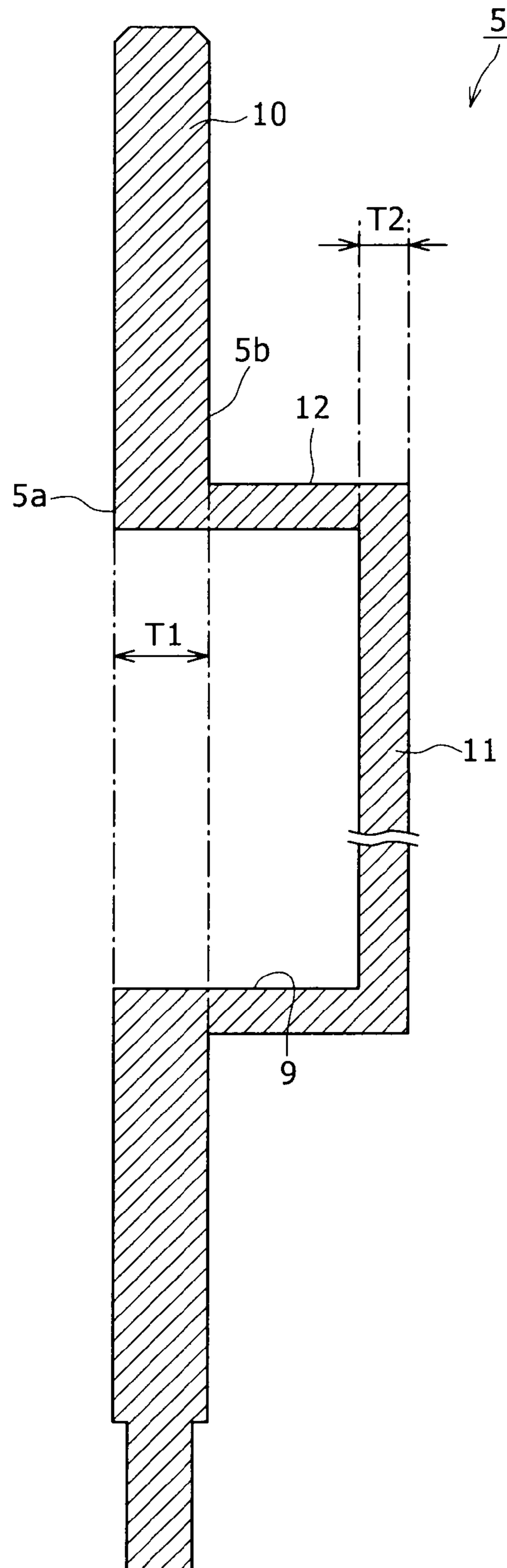


FIG. 7

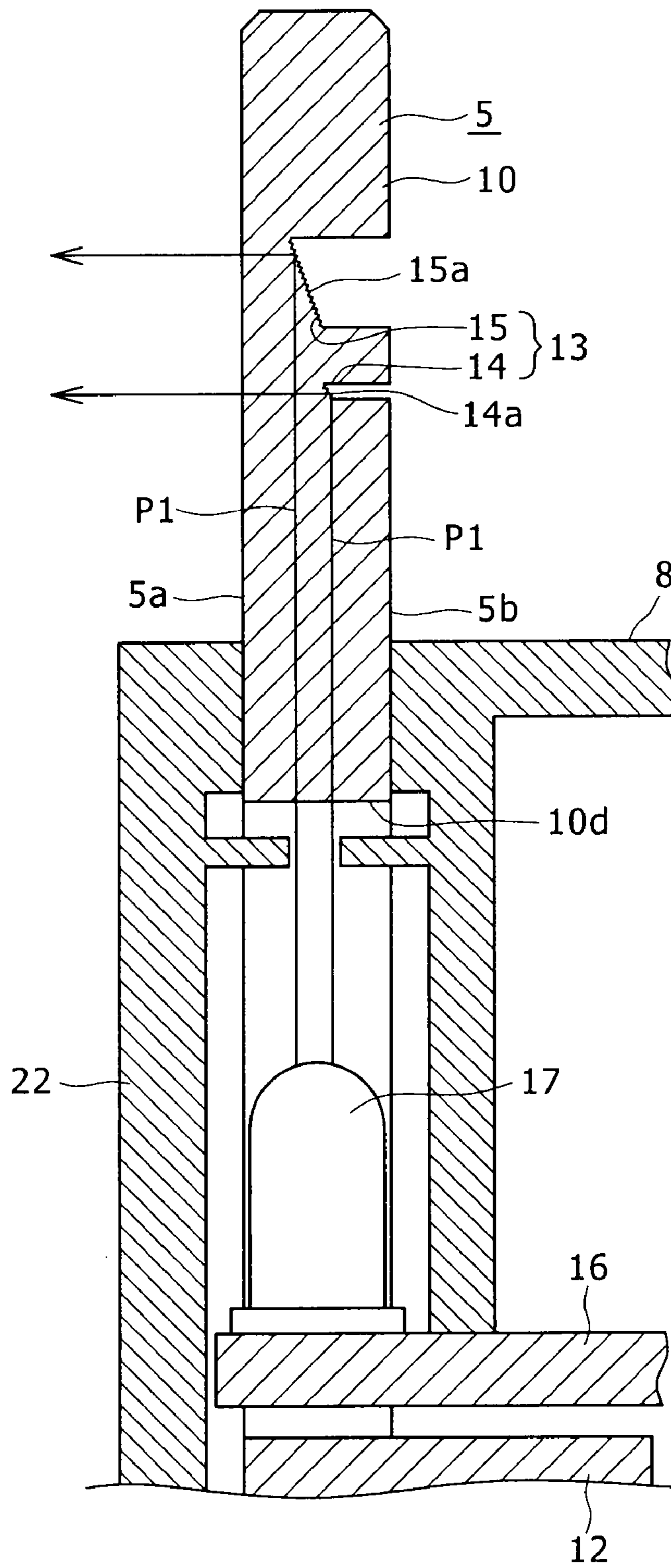


FIG. 8

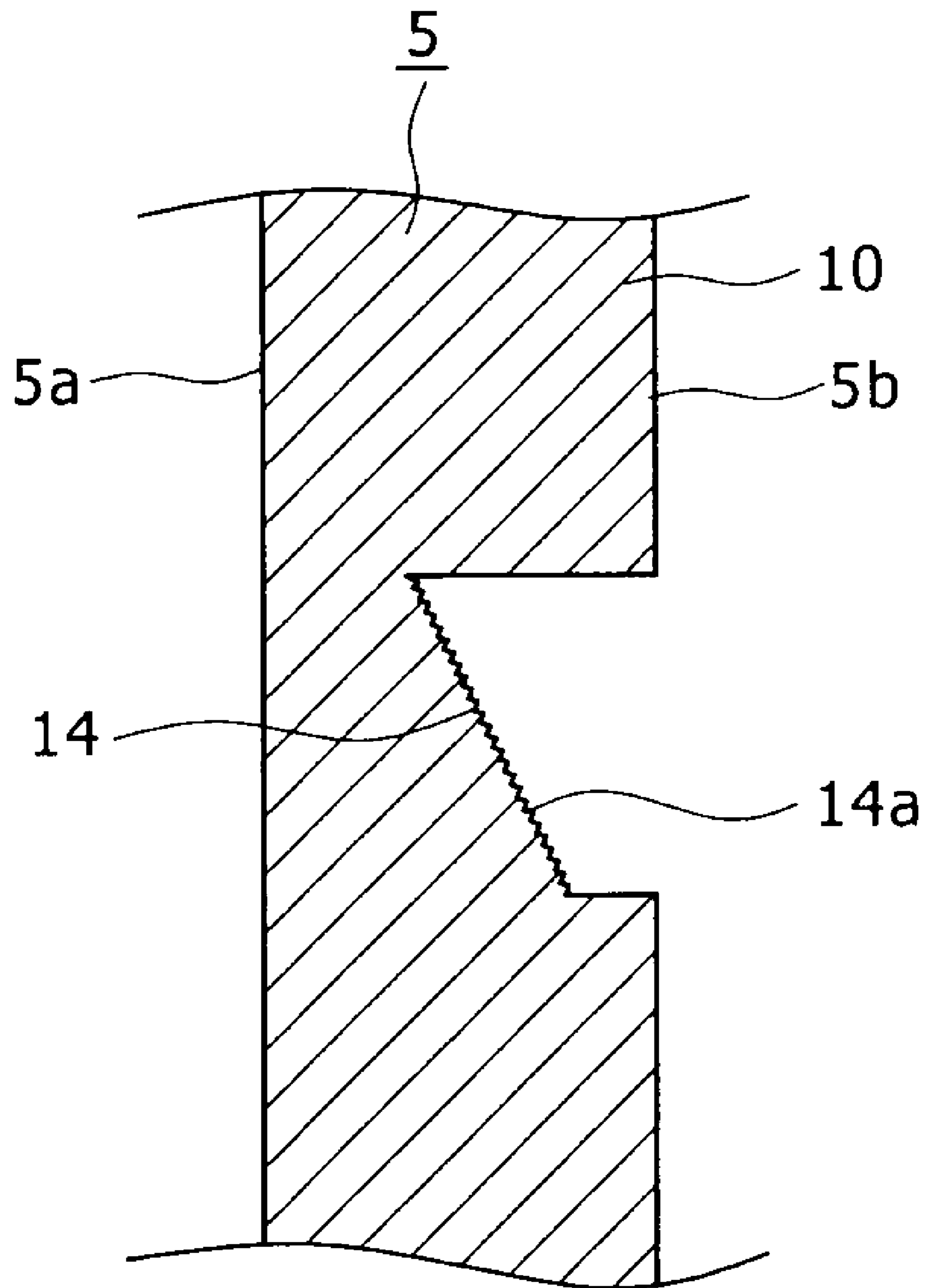


FIG. 9

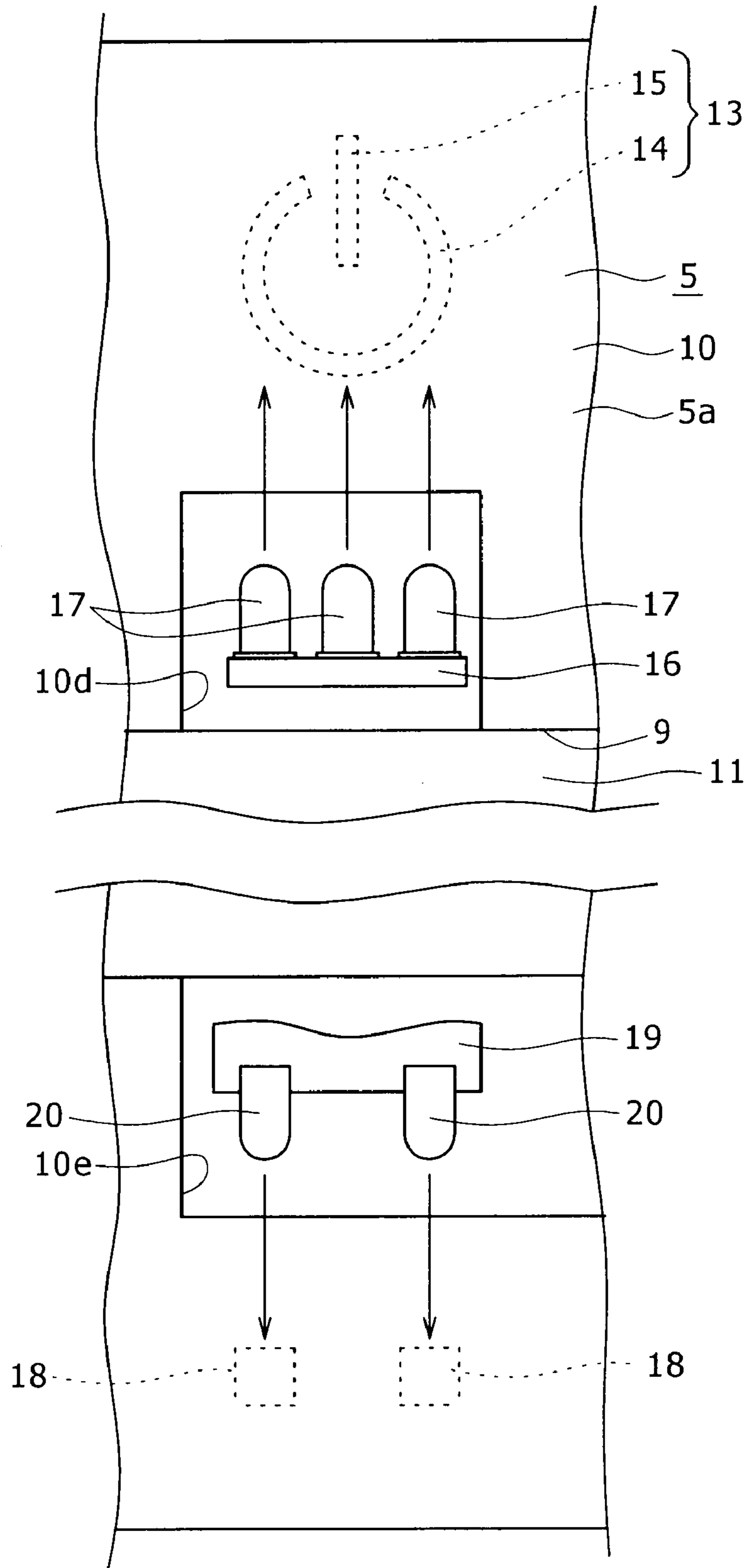


FIG. 10

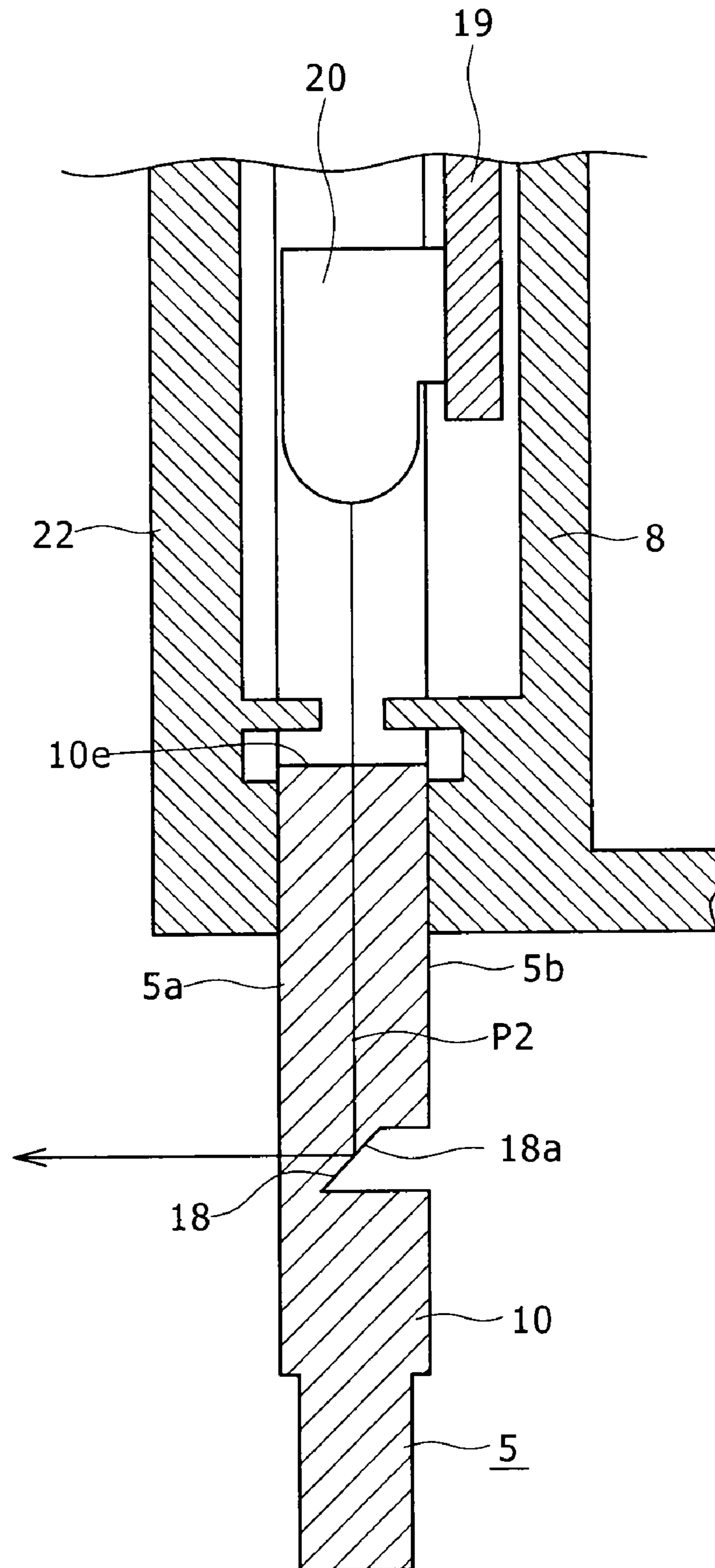


FIG. 11

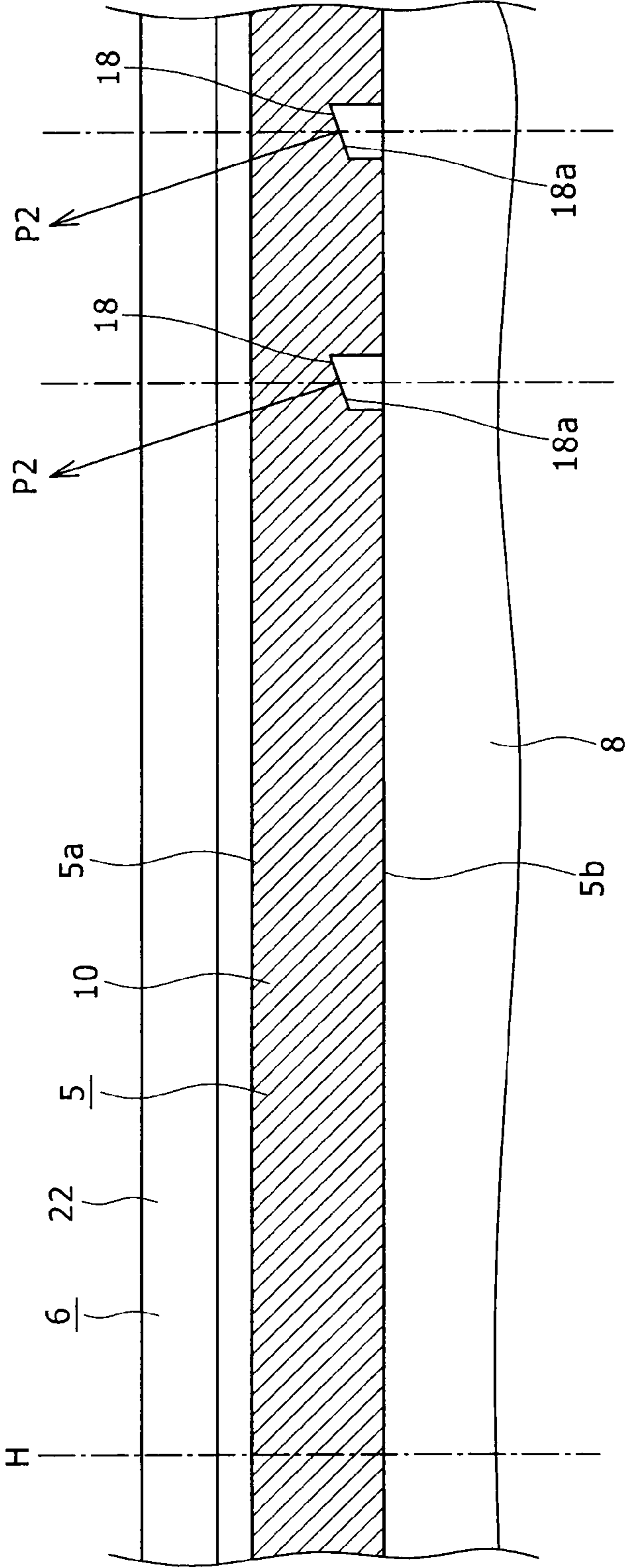


FIG. 12

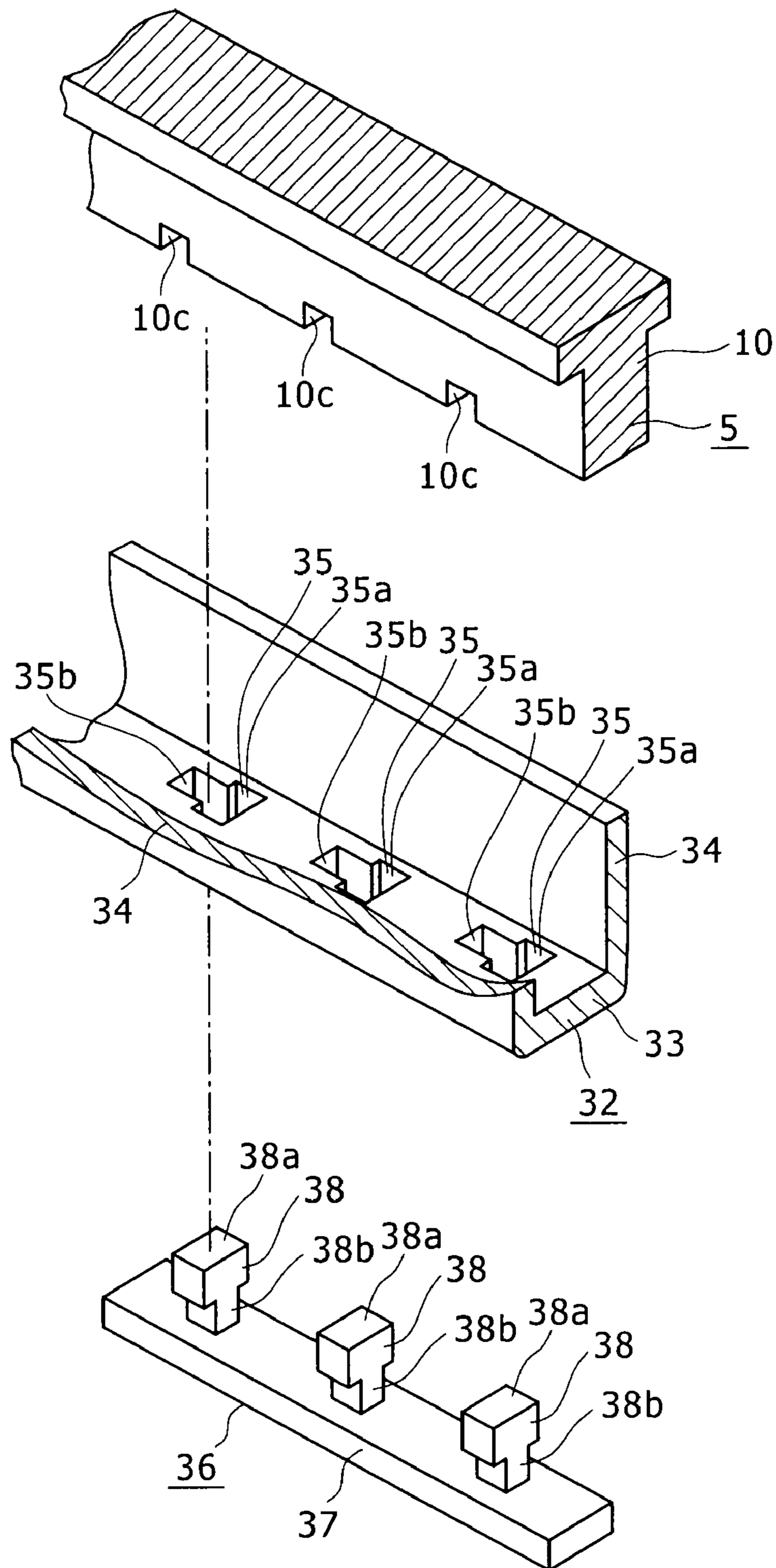


FIG. 13

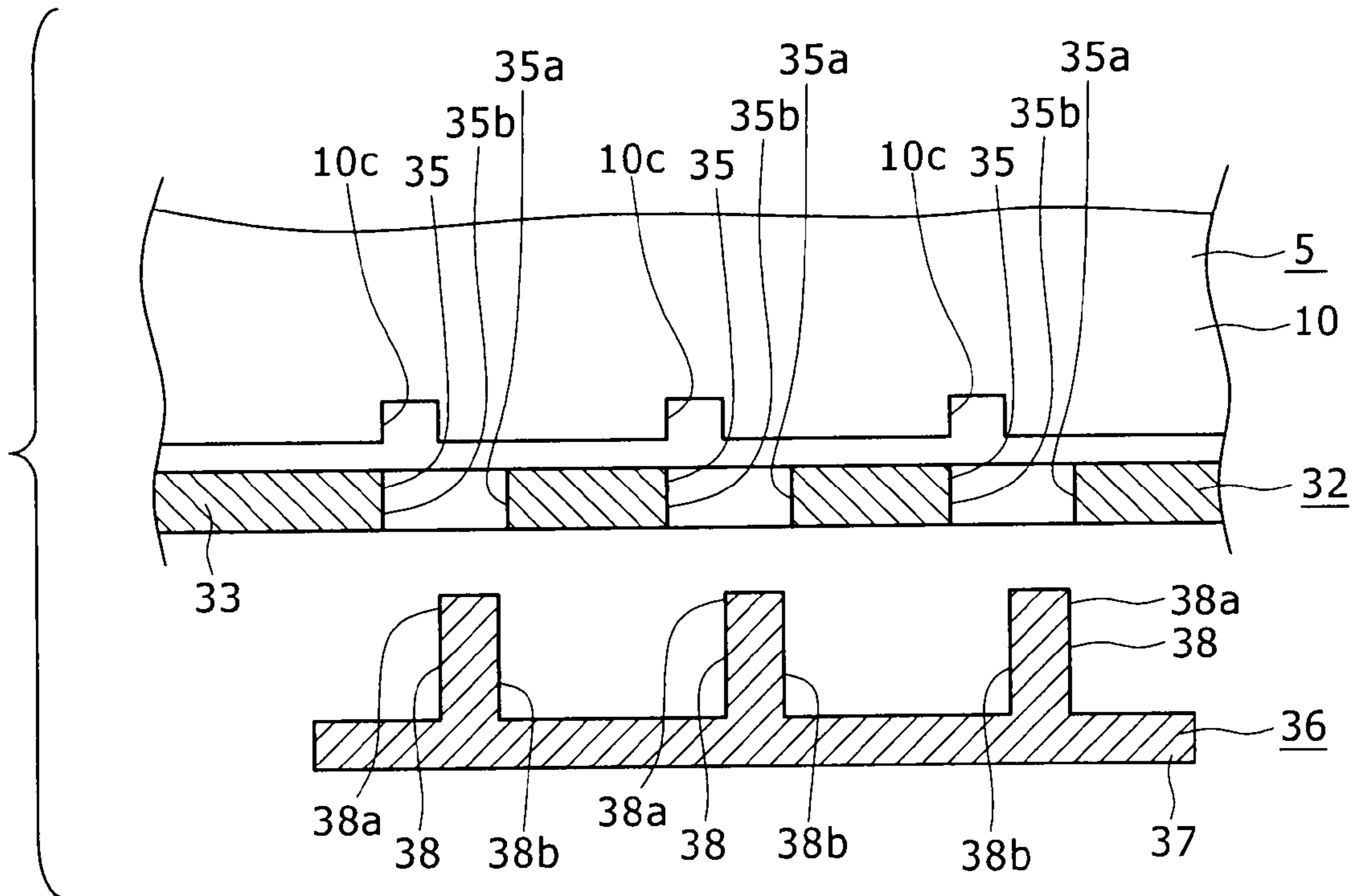


FIG. 14

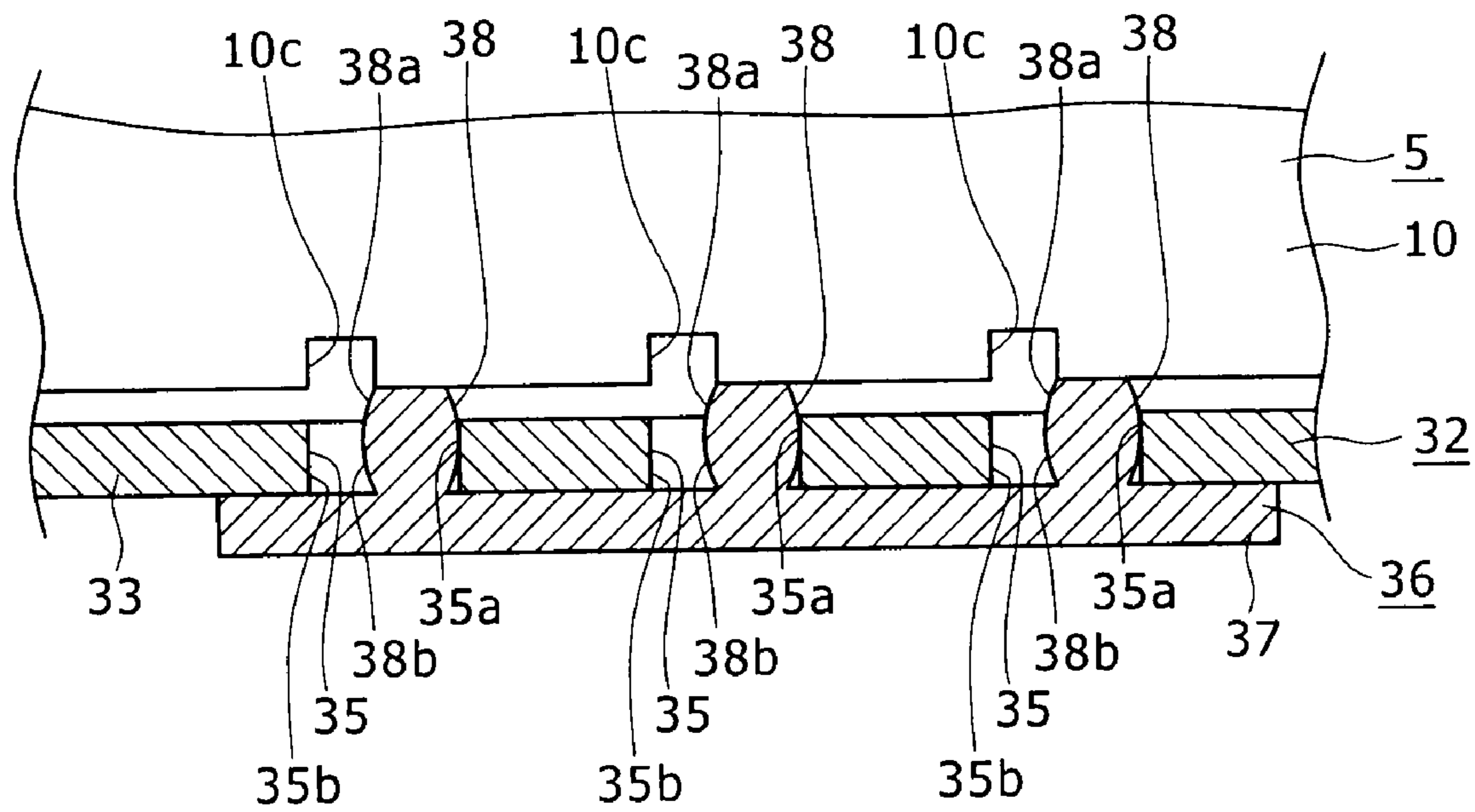
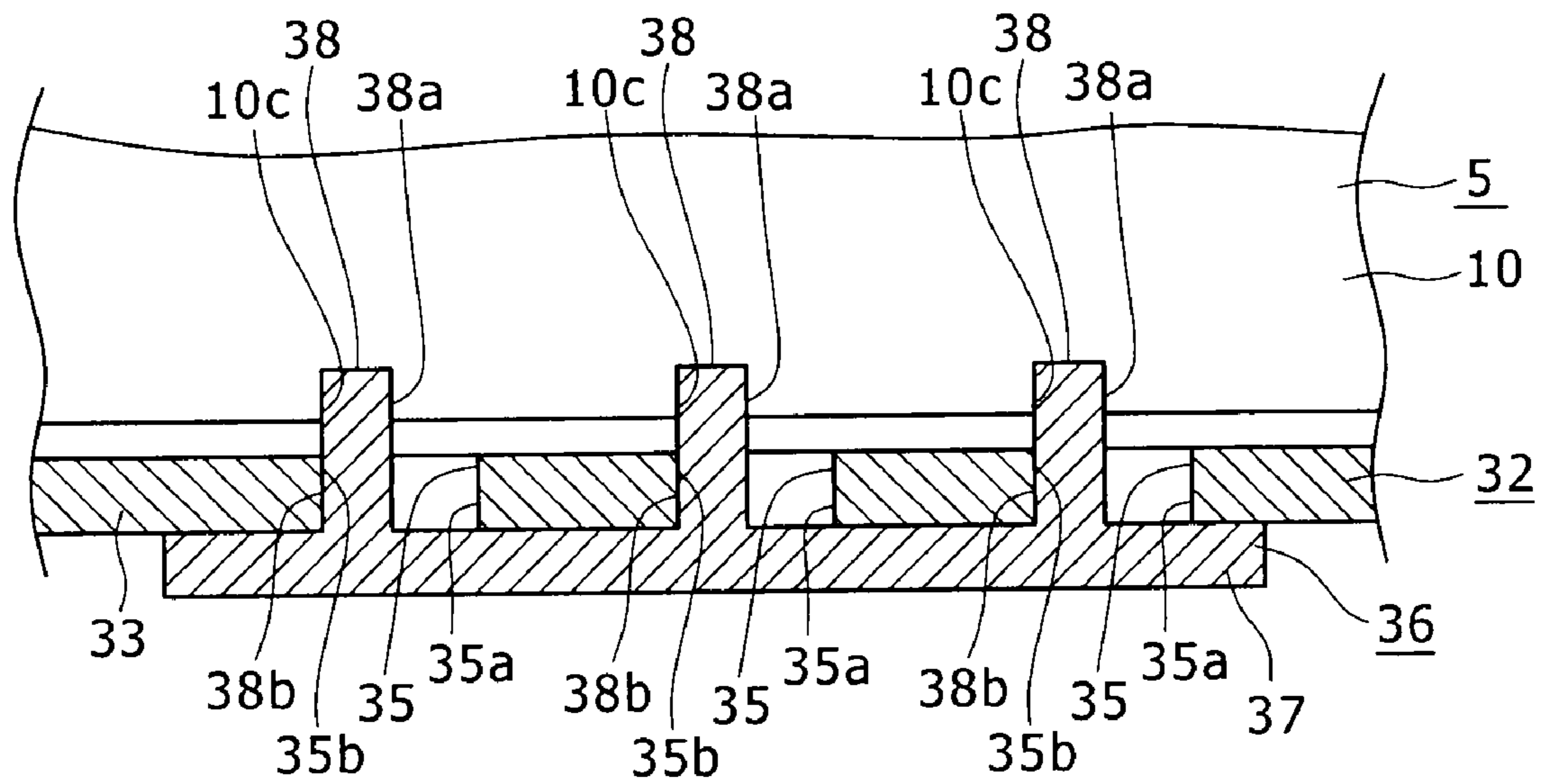


FIG. 15



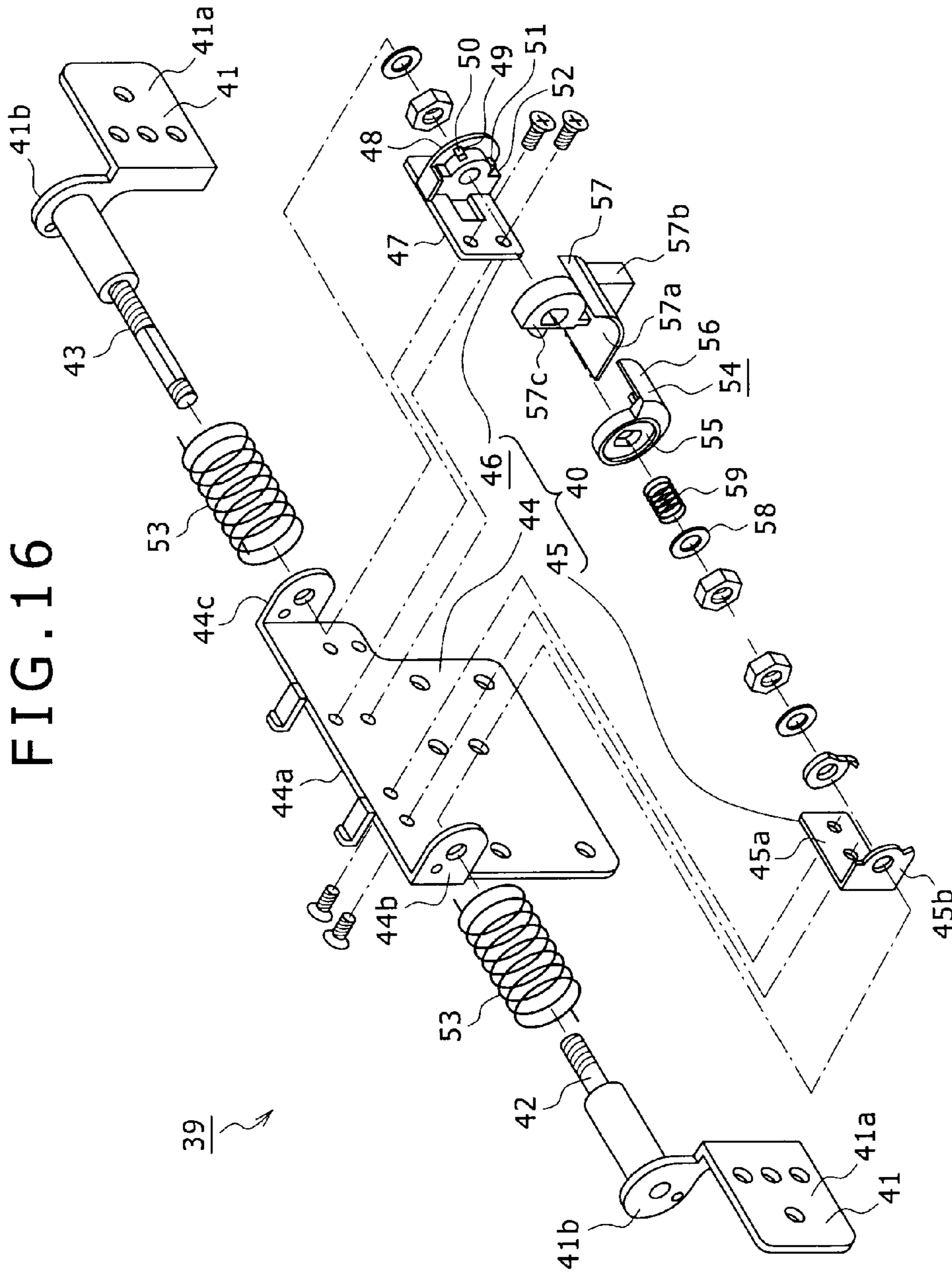


FIG. 18

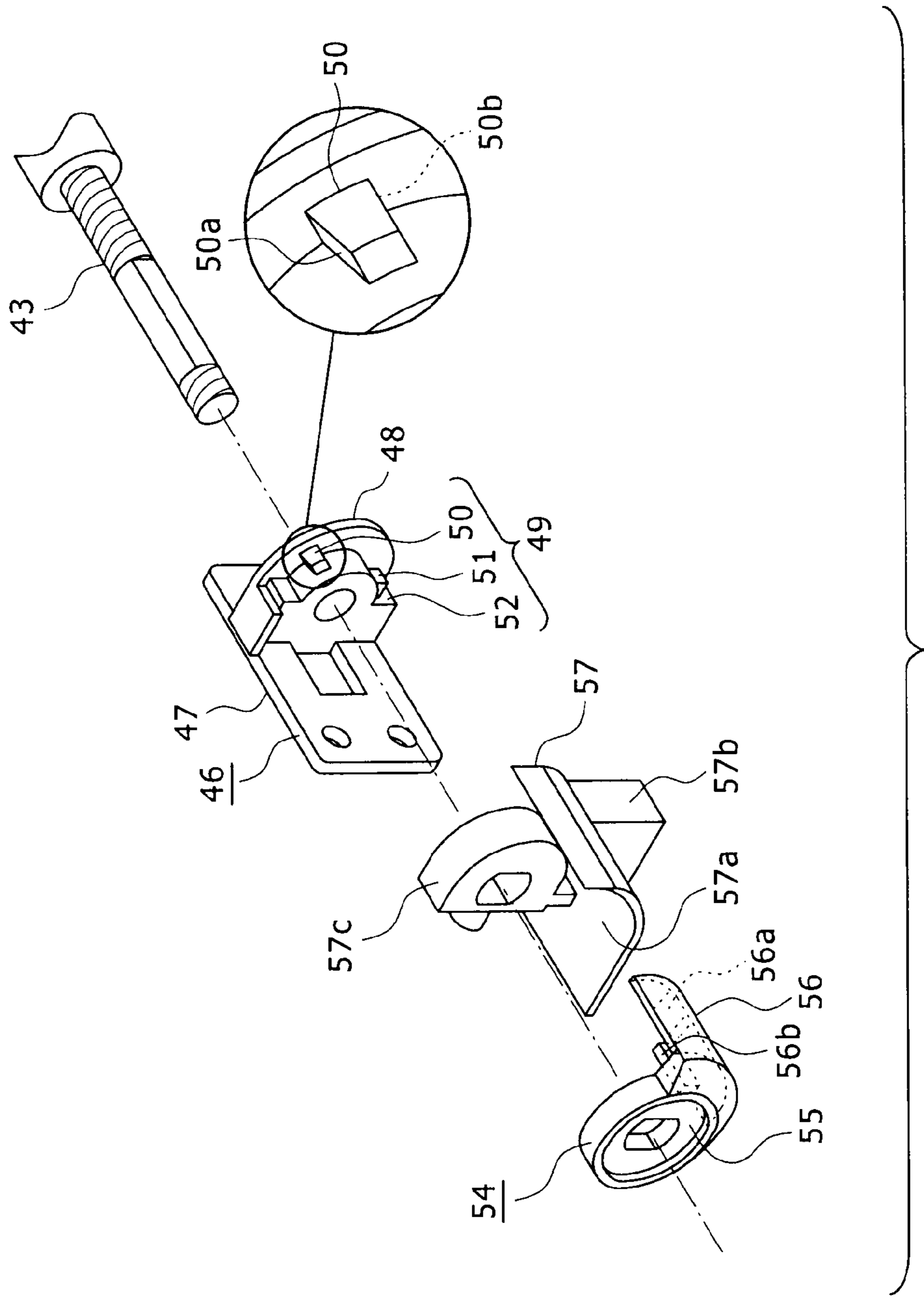


FIG. 19

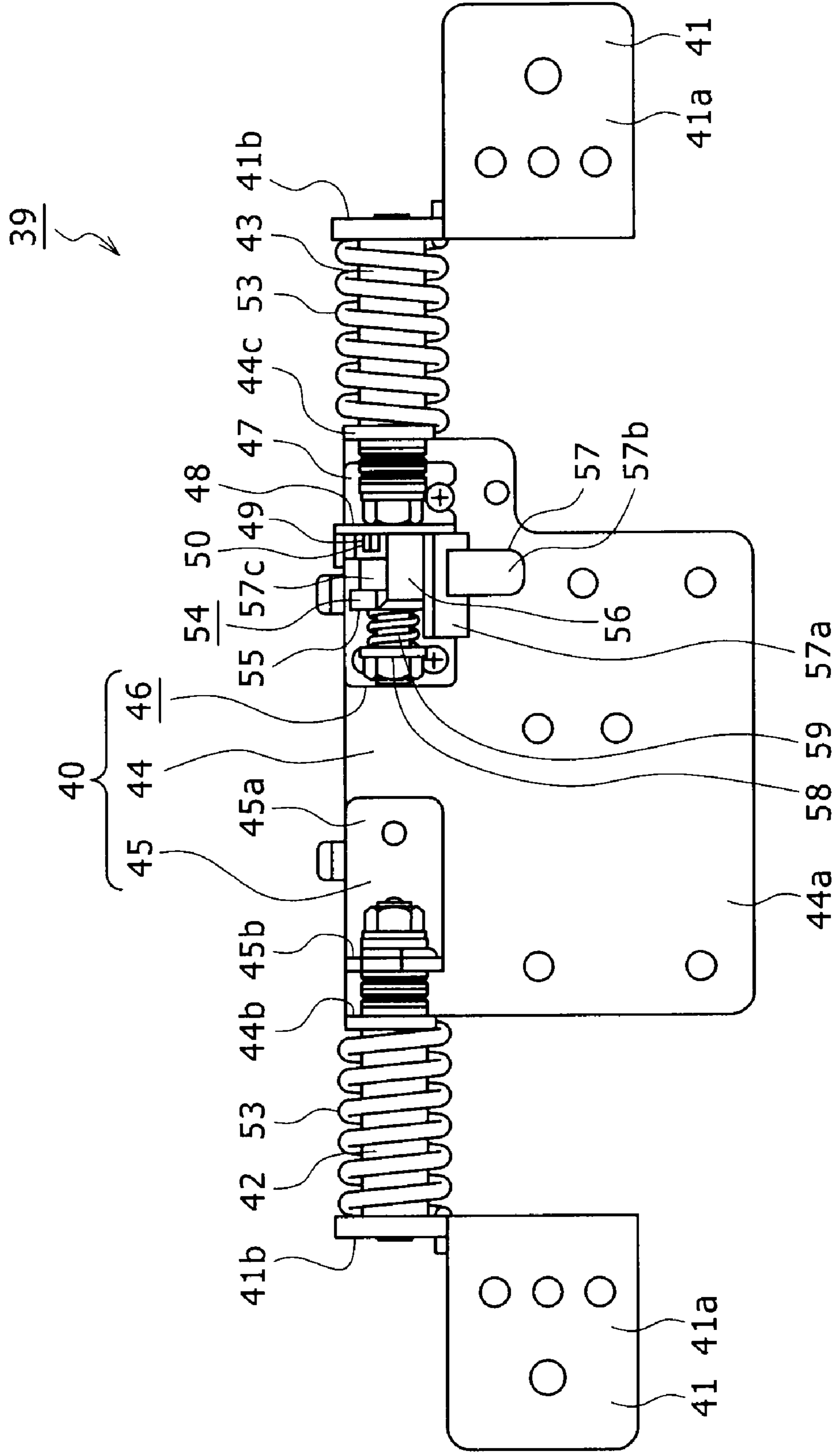


FIG. 20

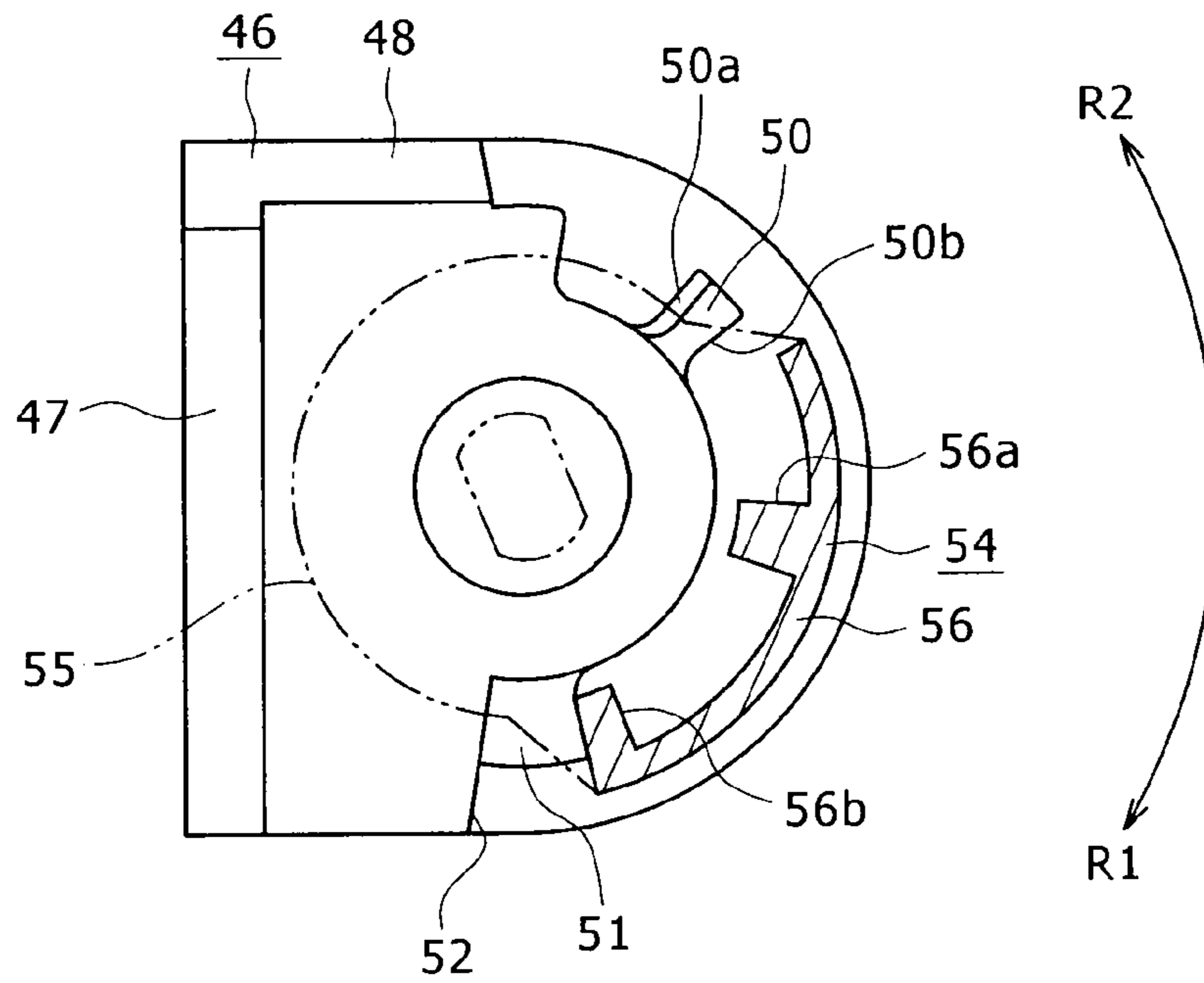


FIG. 21

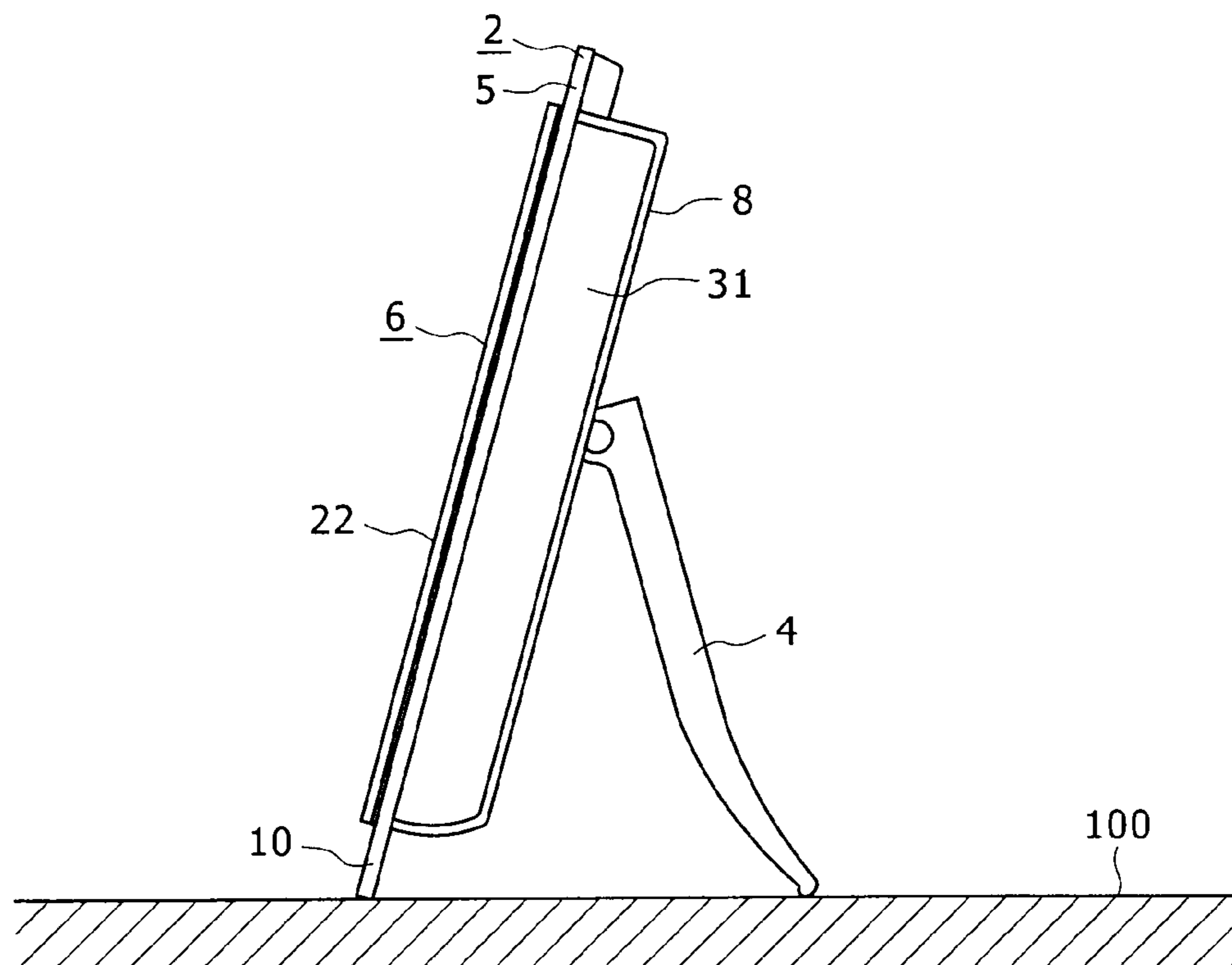


FIG. 22

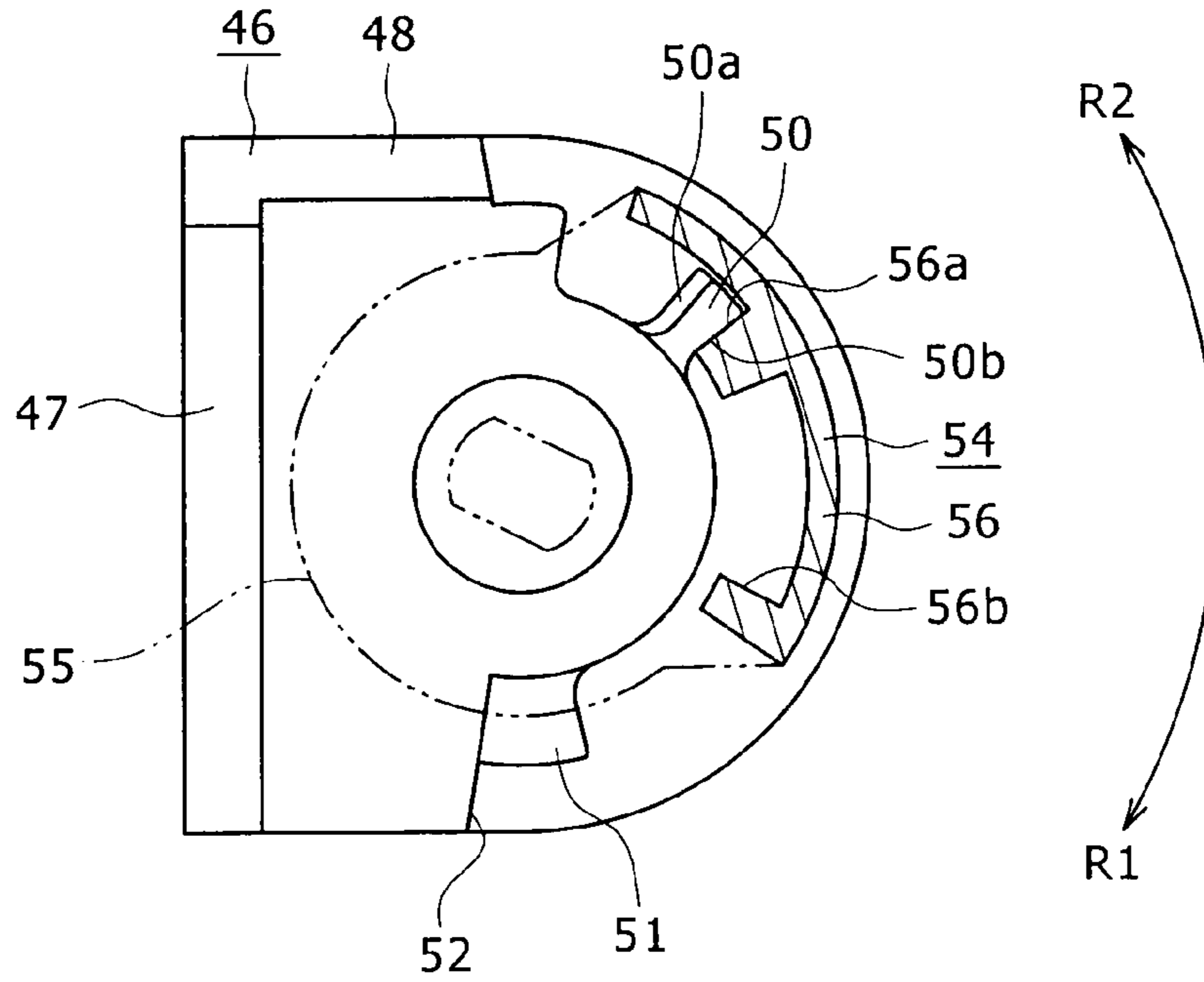


FIG. 23

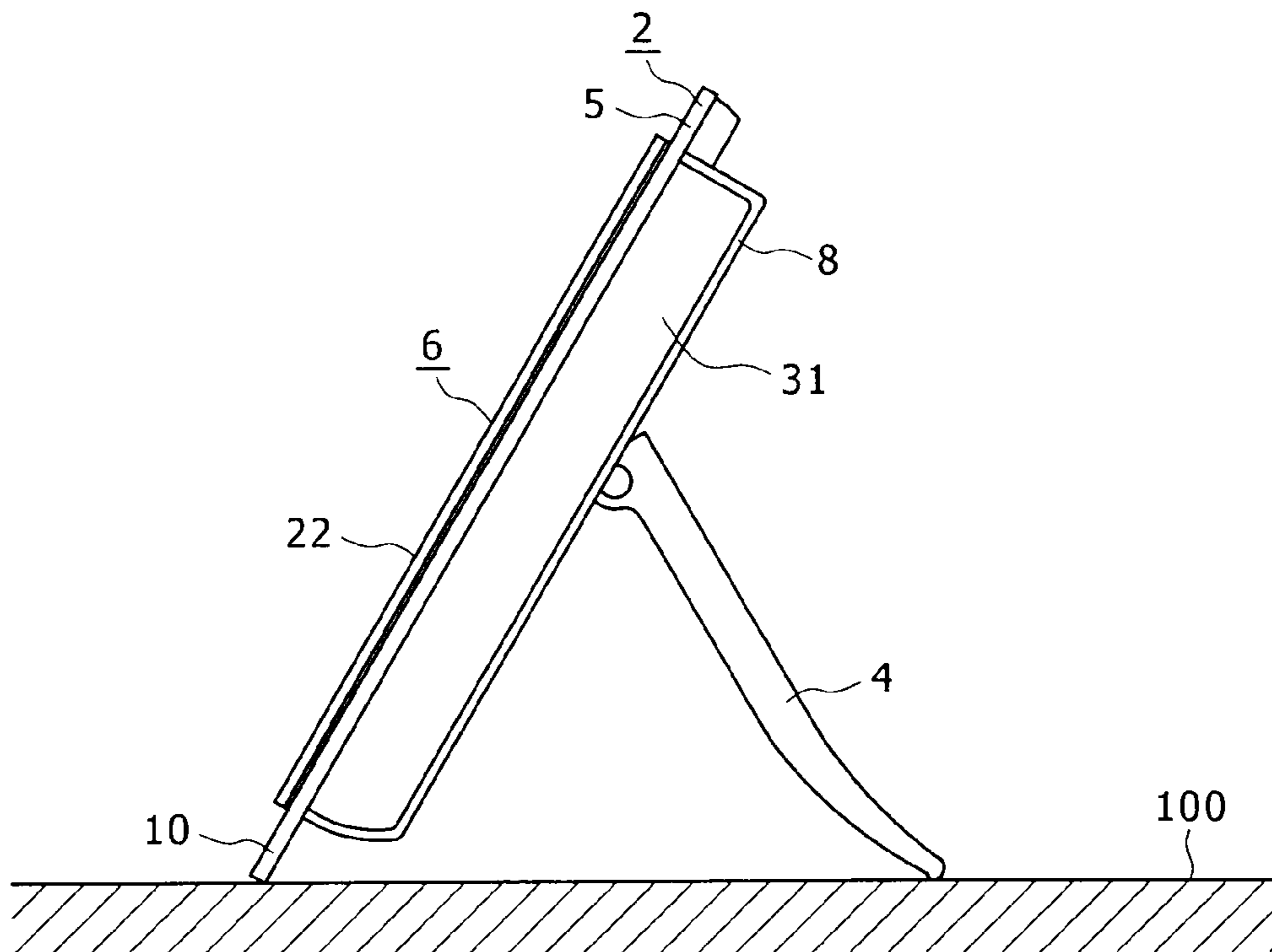


FIG. 24

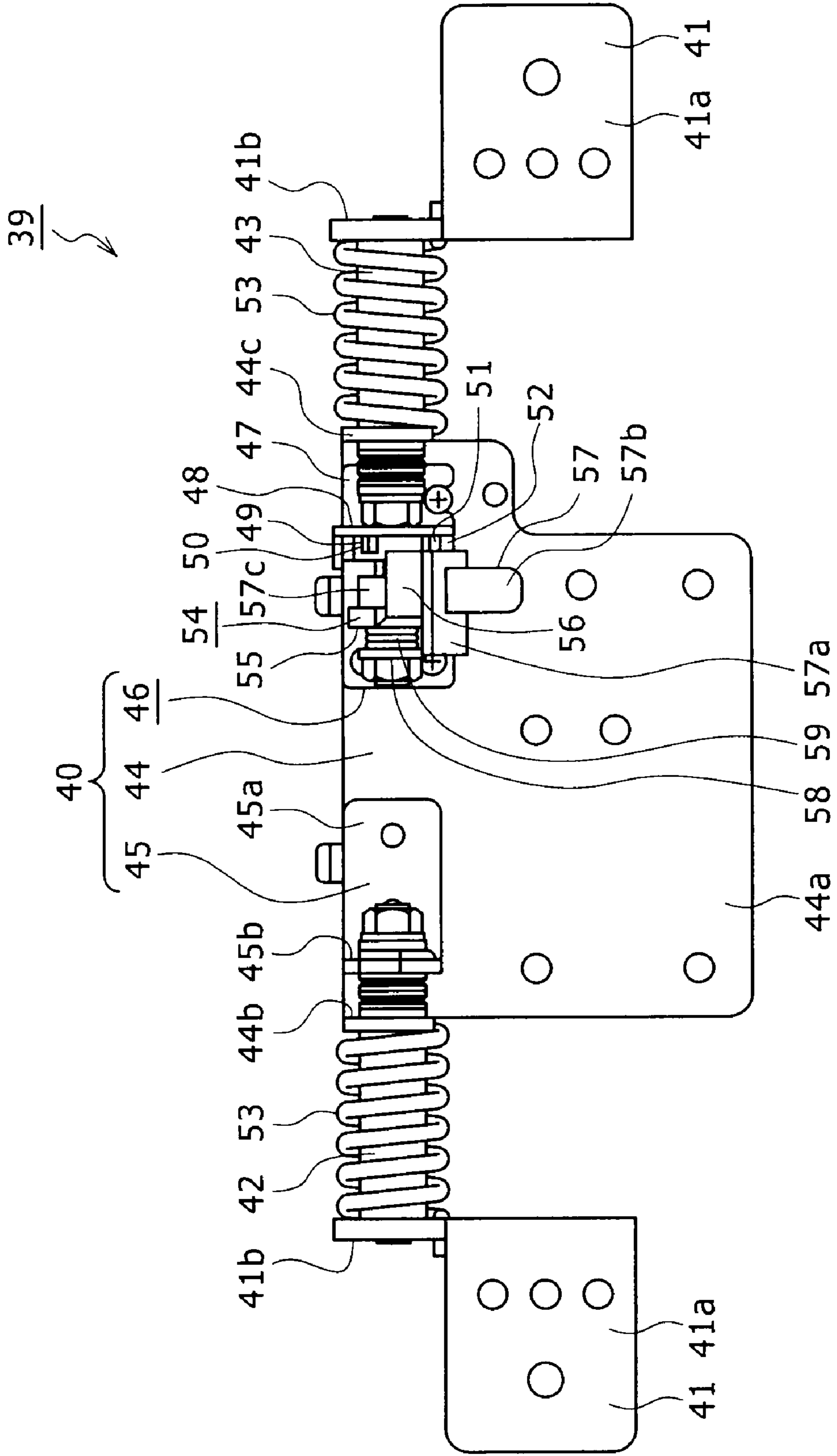


FIG. 25

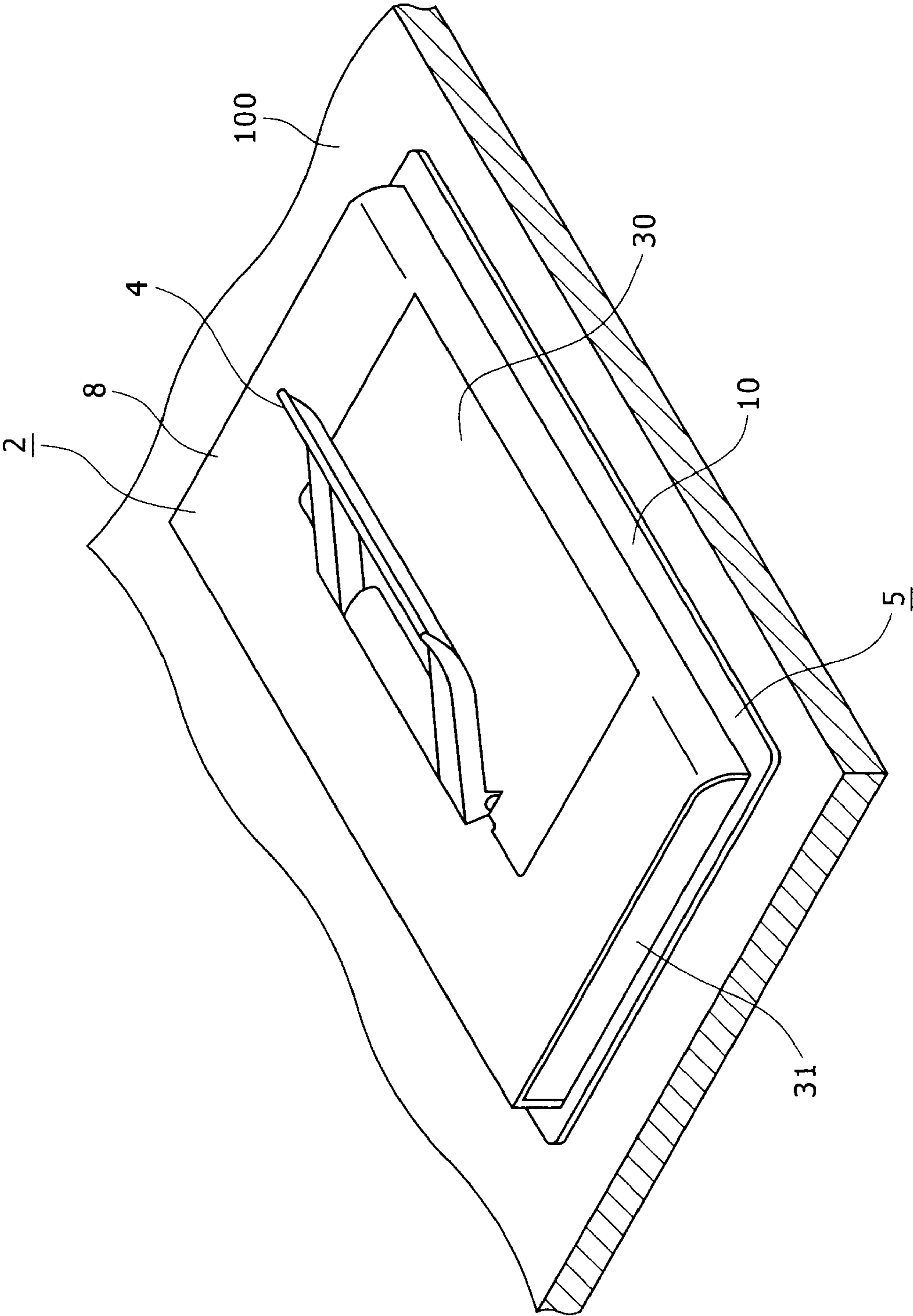


FIG. 26

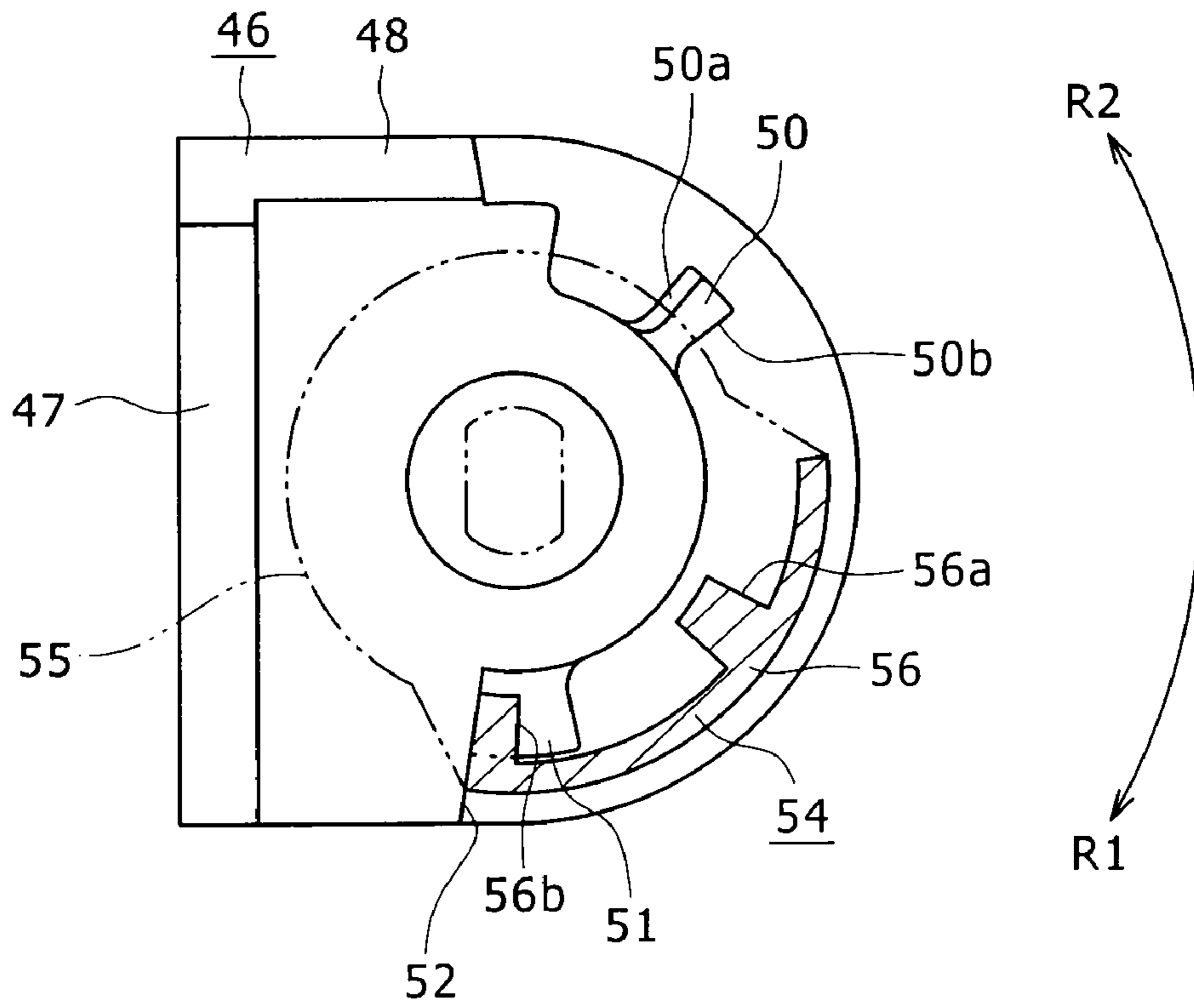


FIG. 27

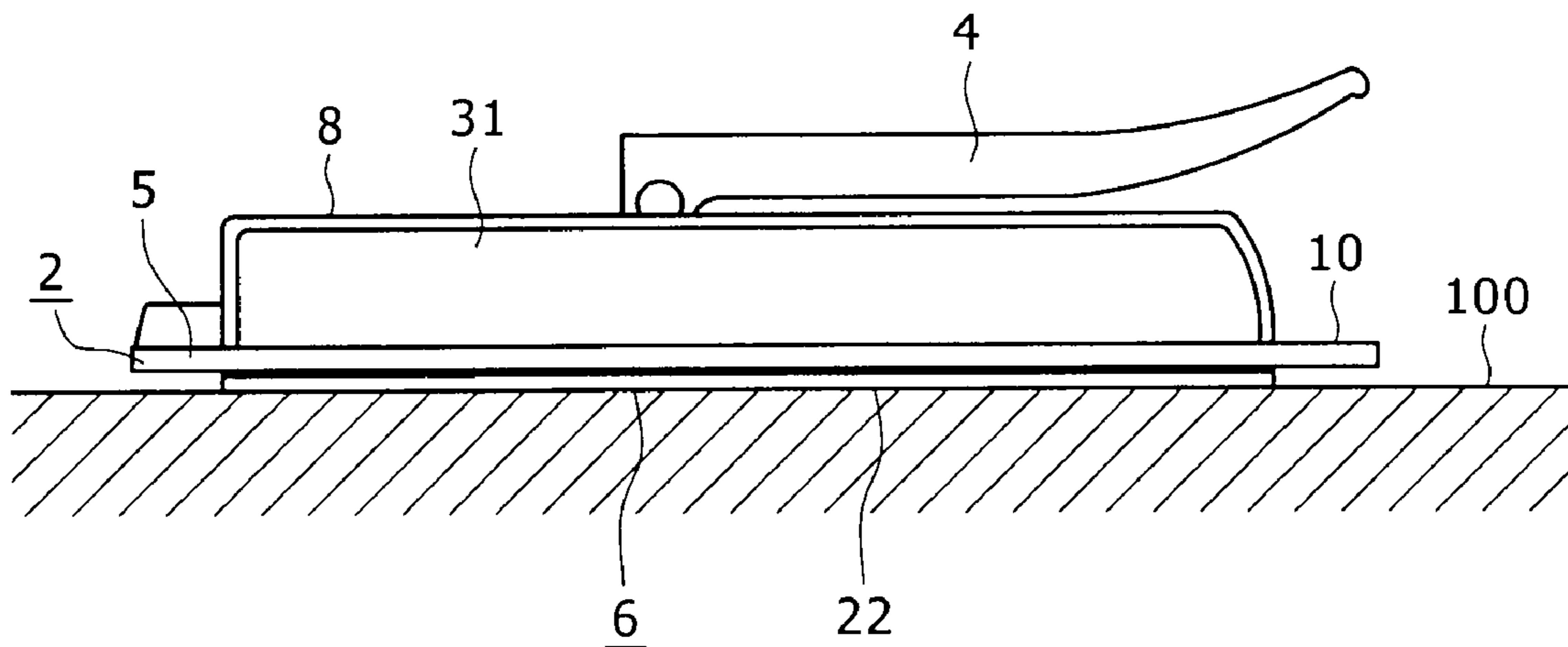


FIG. 28

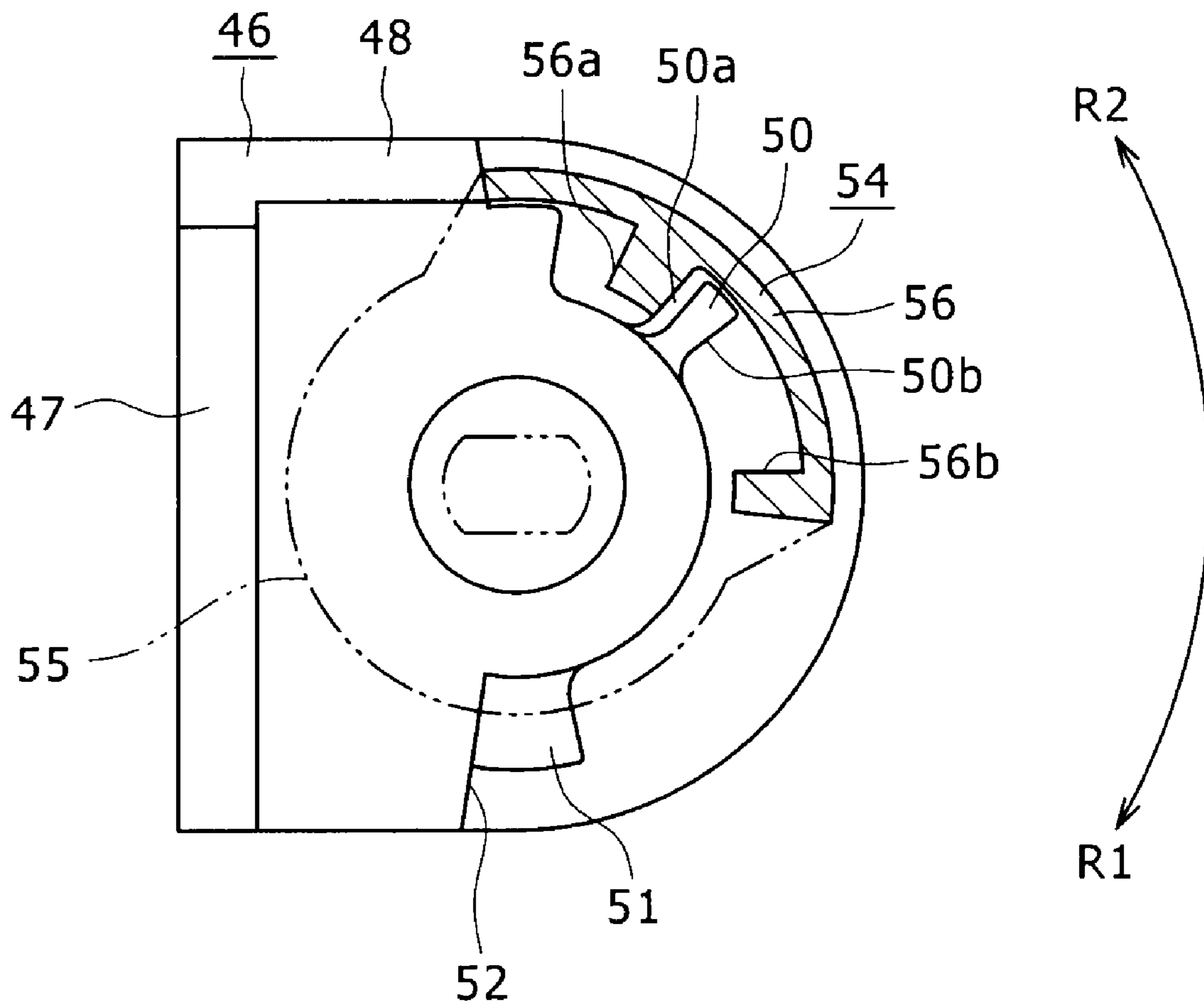


FIG. 29

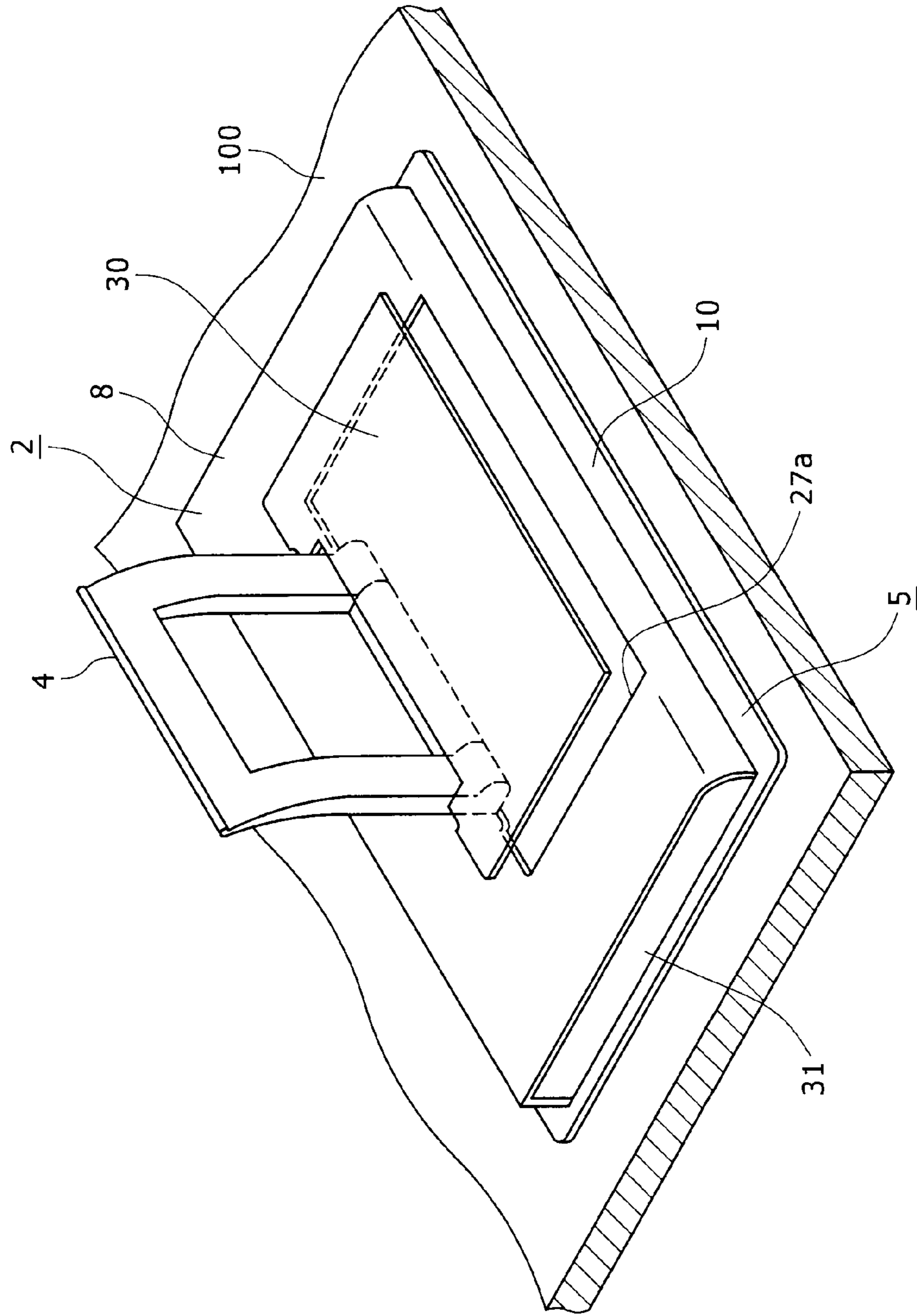


FIG. 30

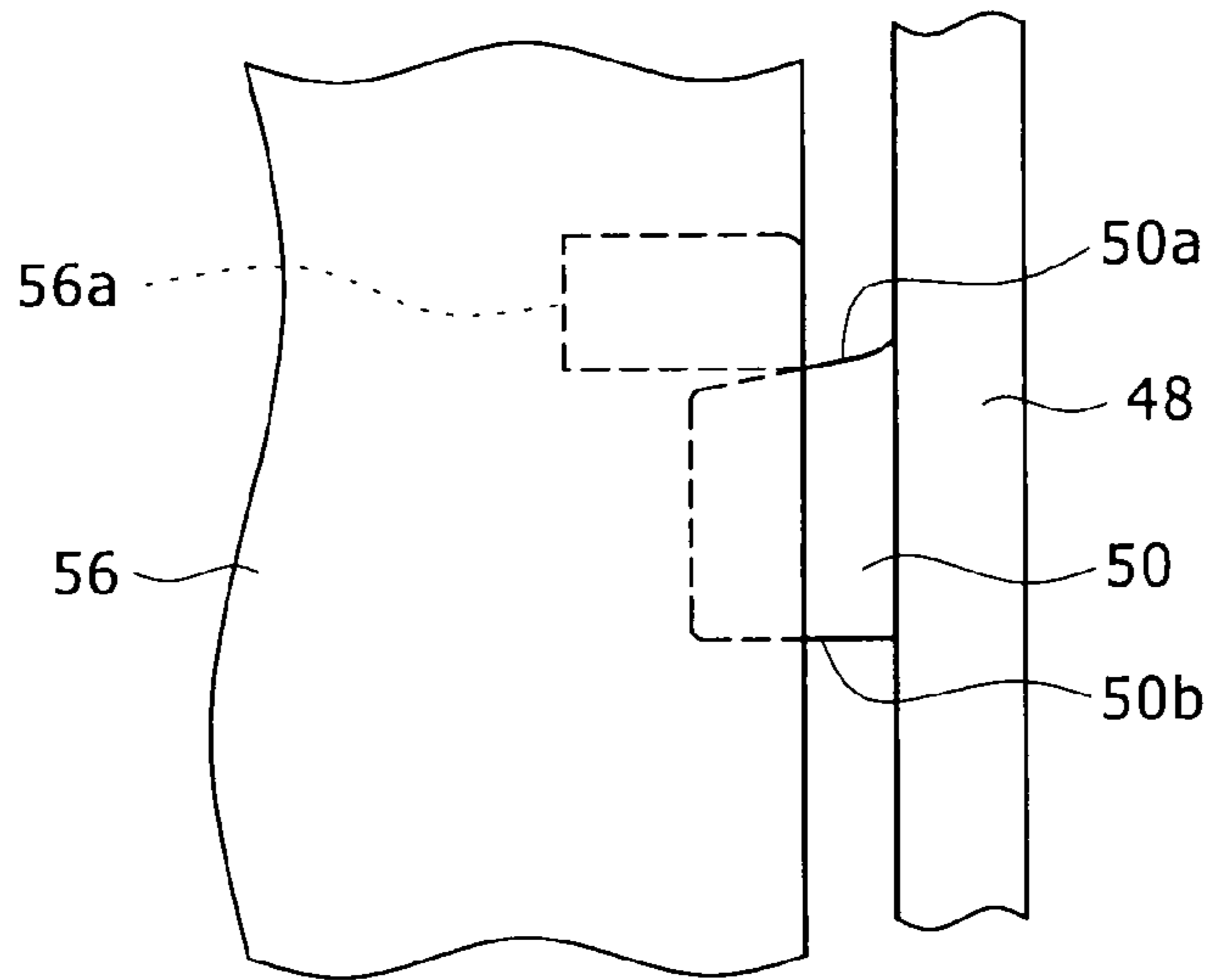
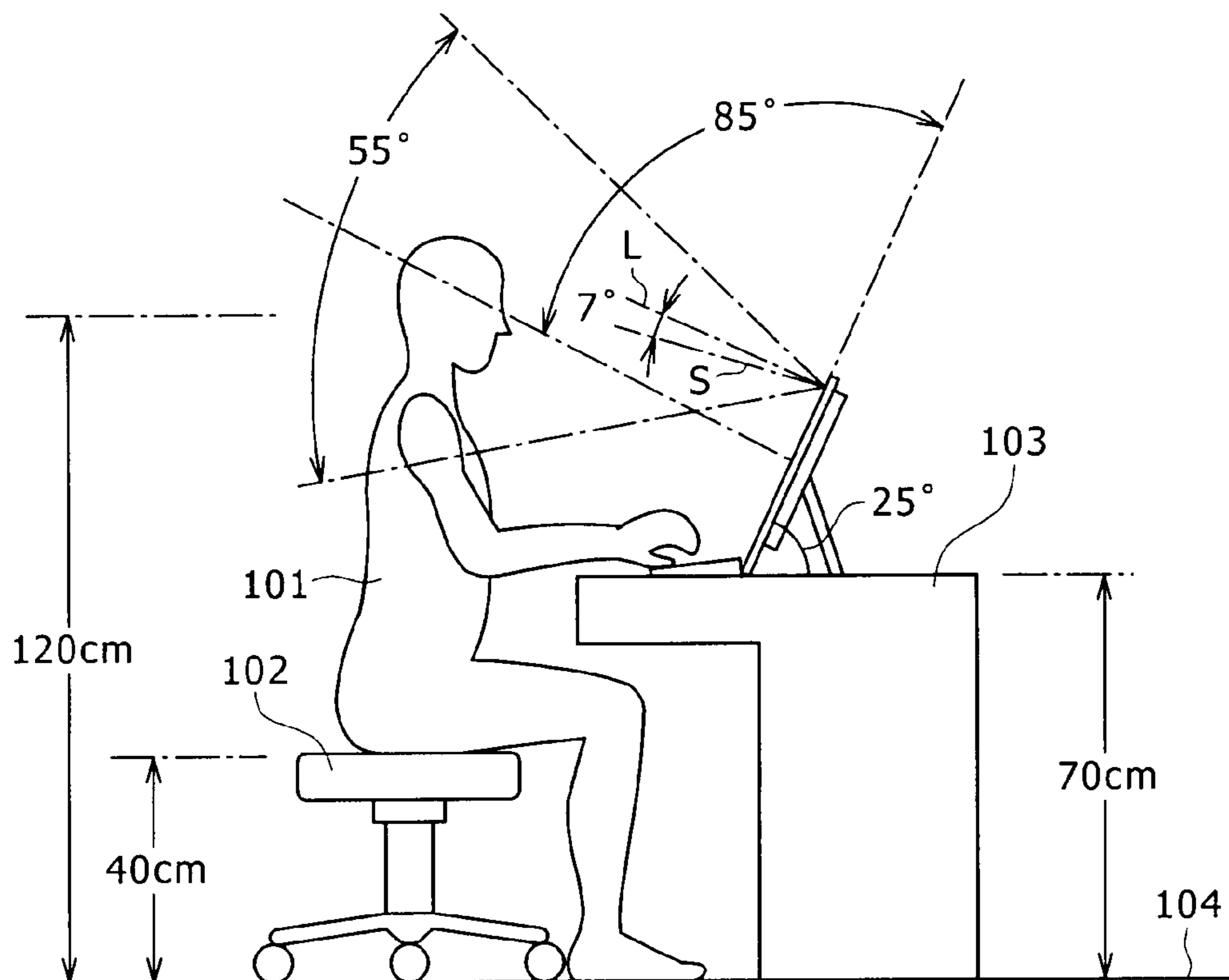


FIG. 31



1

**ELECTRONIC APPARATUS EMITTING
LIGHT THROUGH A UNITARY
TRANSPARENT BASE CHASSIS**

CROSS REFERENCES TO RELATED
APPLICATIONS

This application is a divisional of U.S. application Ser. No. 11/695,318, filed on Apr. 2, 2007, which claims the benefit of priority from prior Japanese Patent Application No. JP 2006-108662, filed on Apr. 11, 2006. The entire contents of each of the above-listed applications are incorporated herein by reference.

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to an electronic apparatus, and more particularly to an electronic apparatus which includes a lamp section for indicating a predetermined operation state.

2. Description of the Related Art

An electronic apparatus such as, for example, a personal computer, a personal digital assistant (PDA), a television receiver or an acoustic apparatus includes a lamp section for indicating a predetermined operation state such as a power supply state or an operation state of a drive. In some electric apparatus, the lamp section is formed by working a transparent material. An electronic apparatus of the type described is disclosed, for example, in Japanese Patent Laid-Open No. 2004-61922 (hereinafter referred to as Patent Document 1).

In the electronic apparatus disclosed in Patent Document 1, a light passing member formed from a transparent material is disposed on the rear side of a front glass plate at a position on the outer peripheral side, and a recess is formed on the light passing member to form a light reflecting section (lamp section). Light emitted from a light emitting section passes through the inside of the light passing member and is reflected by the inner face of the light reflecting section. Then, the light enters the front glass plate from the light passing member and goes out from the front face of the front glass plate so that the light emitted from the light emitting section is visually observed as display light by the user.

SUMMARY OF THE INVENTION

However, in the existing electronic apparatus described above, since the light passing member and the front glass plate are provided such that light emitted from the light emitting section passes through both of them, there is a problem that the structure is complicated.

Further, also it is desirable to enhance the visual observability of the lamp section for displaying a predetermined operation state. Therefore, it is demanded to provide an electronic apparatus which is simplified in structure and exhibits enhanced visual observability of a lamp section.

In order to satisfy the demand, according to the present invention, a luminous lamp section or a reflecting lamp section for receiving light emitted from a semiconductor light emitting element and passing the inside of a base chassis formed from a transparent material is formed on the base chassis.

In particular, according to an embodiment of the present invention, there is provided an electronic apparatus including a base chassis formed as a unitary member from a transparent material and having two faces positioned on the opposite sides to each other and individually formed as a first mounting face section and a second mounting face section, a display

2

unit having a display panel thereon and attached to the first mounting face section of the base chassis, a control circuit board attached to the second mounting face section of the base chassis, a rear cover attached to the second mounting face section of the base chassis and configured to cover the control circuit board, a device mounting board having a semiconductor light emitting element disposed thereon, and a luminous lamp section formed at a position of the base chassis on the outer side of the display unit and configured to receive and emit light having been emitted from the semiconductor light emitting element and passed through the inside of the base chassis.

In the electronic apparatus, light emitted from the semiconductor light emitting element and incoming to the luminous lamp section is emitted as display light from the luminous lamp section.

Accordingly, with the electronic apparatus, enhancement of the visual observability can be anticipated while the simple structure that the luminous lamp section is formed on the base chassis is assured.

The electronic apparatus may be configured such that a groove is formed on the base chassis such that an interior face portion thereof serves as the luminous lamp section, and the luminous lamp section is formed so as to be inclined with respect to the light path of incoming light to the luminous lamp section and is so shaped as to increase the depth of the groove away from the semiconductor light emitting element. With the electronic apparatus, light incoming to the luminous lamp section is introduced uniformly to the interior face portion. Consequently, enhancement of the incidence efficiency of light can be anticipated.

According to another embodiment of the present invention, there is provided an electronic apparatus including a base chassis formed as a unitary member from a transparent material and having two faces positioned on the opposite sides to each other and individually formed as a first mounting face section and a second mounting face section, a display unit having a display panel thereon and attached to the first mounting face section of the base chassis, a control circuit board attached to the second mounting face section of the base chassis, a rear cover attached to the second mounting face section of the base chassis and configured to cover the control circuit board, a device mounting board having a semiconductor light emitting element disposed thereon, and a reflecting lamp section formed at a position of the base chassis on the outer side of the display unit and having an inner face which reflects light having been emitted from the semiconductor light emitting element and passed through the inside of the base chassis, the reflecting lamp section being inclined in a direction in which the light reflected by the reflecting lamp section is introduced in a direction toward a normal line which passes the center of the display panel.

In the electronic apparatus, light emitted from the semiconductor light emitting element and incoming to the reflecting lamp section is emitted as display light from the reflecting lamp section.

Accordingly, with the electronic apparatus, enhancement of the visual observability can be anticipated while the simple structure that the reflecting lamp section is formed on the base chassis is assured.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of an electronic apparatus to which the present invention is applied;

FIG. 2 is a similar view but showing an electronic apparatus of a different type;

3

FIG. 3 is a schematic exploded perspective view of the electronic apparatus of FIG. 1;

FIG. 4 is a schematic exploded perspective view of the electronic apparatus as viewed from the opposite side to that in FIG. 3;

FIG. 5 is a schematic enlarged sectional view of a base chassis;

FIG. 6 is a front elevational view of the base chassis;

FIG. 7 is an enlarged sectional view taken along line VII-VII of FIG. 6 and showing an element mounting board and a semiconductor light emitting element;

FIG. 8 is an enlarged sectional view taken along line VIII-VIII of FIG. 6;

FIG. 9 is an enlarged front elevational view illustrating a positional relationship among the semiconductor light emitting element, a luminous lamp section and a reflective lamp section;

FIG. 10 is an enlarged sectional view taken along line X-X of FIG. 6 and showing the element mounting board and the semiconductor light emitting element;

FIG. 11 is an enlarged sectional view showing an outgoing direction of light reflected by the reflective lamp section;

FIG. 12 is an enlarged exploded perspective view showing a lower end portion of the base chassis, a holding member and a placement pad;

FIG. 13 is an enlarged sectional view showing the placement pad before attached to the holding member;

FIG. 14 is an enlarged sectional view showing the placement pad being attached to the holding member;

FIG. 15 is an enlarged sectional view showing the placement pad attached to the holding member;

FIG. 16 is an exploded perspective view of a pivoting mechanism;

FIG. 17 is a perspective view of the pivoting mechanism;

FIG. 18 is an enlarged exploded perspective view showing part of the pivoting mechanism;

FIG. 19 is an enlarged rear elevational view showing a pivoting angle changing lever at a first position;

FIG. 20 is an enlarged sectional view illustrating a positional relationship between a locking portion and a controlled member when the pivoting angle of a stand with respect to an apparatus body is 30°;

FIG. 21 is a side elevational view showing the stand whose pivoting angle with respect to the apparatus body is 30°;

FIG. 22 is an enlarged sectional view illustrating a positional relationship between the locking portion and the controlled member when the pivoting angle of the stand with respect to the apparatus body is 60°;

FIG. 23 is a side elevational view showing the stand whose pivoting angle with respect to the apparatus body is 60°;

FIG. 24 is an enlarged rear elevational view showing the pivoting angle changing lever moved to a second position;

FIG. 25 is a perspective view showing the electronic apparatus when it is tried to set a second mode;

FIG. 26 is an enlarged sectional view illustrating a positional relationship between the locking portion and the controlled member when the pivoting angle of the stand with respect to the apparatus body is 0°;

FIG. 27 is a side elevational view showing the stand whose pivoting angle with respect to the apparatus body is 0°;

FIG. 28 is an enlarged sectional view illustrating a positional relationship between the locking portion and the controlled member when the pivoting angle of the stand with respect to the apparatus body is 90°;

FIG. 29 is a side elevational view showing the stand whose pivoting angle with respect to the apparatus body is 90°;

4

FIG. 30 is a schematic view showing a first controlled portion of the controlled member slidably moving on a first controlling face of a first controlling portion of a bearing member; and

FIG. 31 is a schematic view illustrating the directions of the optical axis of an image pickup lens of a camera unit in a standard state and a reference state when a user uses the electronic apparatus.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

In the following, the present invention is described in connection with a preferred embodiment thereof. In the embodiment described, the present invention is applied to an electronic apparatus in the form of a personal computer.

It is to be noted that the application of the electronic apparatus according to the present invention is not limited to a personal computer, but the electronic apparatus of the present invention can be applied widely to various electronic apparatus such as information processing apparatus such as, for example, a personal digital assistant (PDA), a network terminal, a portable information terminal and a working station, acoustic apparatus, electronic appliances for home use and so forth.

In the following description, for the convenience of illustration and description, upward, downward, forward, rearward, leftward and rightward directions are defined with respect to the direction in which a user visually observes the display screen of the personal computer, and this side (user side) with respect to the display screen is defined as a forward direction while the leftward and rightward directions of the user are defined as leftward and rightward directions, respectively.

Referring first to FIG. 1, the electronic apparatus 1 shown includes an apparatus body 2, a keyboard 3, and a stand 4 supported for pivotal motion on a rear face 2a of the apparatus body 2.

The keyboard 3 is, for example, disconnected from the apparatus body 2 and has predetermined operation keys 3a provided thereon. If any of the operation keys 3a of the keyboard 3 is operated, then a signal corresponding to the operated operation key 3a is outputted from the keyboard 3. The outputted signal is inputted by radio communication to a reception section not shown provided on the apparatus body 2, and various processes are executed in response to the operation of the operation key 3a by the apparatus body 2.

Since the keyboard 3 of the electronic apparatus 1 is separate from the apparatus body 2 in this manner, it can be used at an arbitrary position as occasion demands within a range within which the radio signal can be received by the apparatus body 2.

It is to be noted that the electronic apparatus is not limited to an apparatus of the type wherein the keyboard 3 is separate from the apparatus body 2. In particular, the electronic apparatus may be formed as such an electronic apparatus 1A as shown in FIG. 2 which includes an apparatus body 2, a keyboard 3 supported for folding movement on a front face 2b of the apparatus body 2, and a stand 4 supported for pivotal motion of a rear face 2a of the apparatus body 2. The electronic apparatus 1A has an advantage that the arrangement space when the keyboard 3 is not used is reduced because the keyboard 3 can be folded when the electronic apparatus 1A is not used.

Referring now to FIGS. 3 and 4, the apparatus body 2 has various requisite members attached to the opposite front and rear faces of a base chassis 5. In particular, the apparatus body

5

2 includes a base chassis **5**, a display unit **6** attached to the front face of the base chassis **5**, and a control circuit board **7** and a rear cover **8** attached to the rear face of the base chassis **5**.

The base chassis **5** is formed as a plate directed in the forward and backward directions by injection molding using a transparent material such as, for example, an acrylic resin material. The front face of the base chassis **5** is formed as a first mounting face section **5a** while the rear face of the base chassis **5** is formed as a second mounting face section **5b**.

The base chassis **5** has a mounting recess **9** formed therein so as to be open forwardly. The mounting recess **9** is formed at a portion of the base chassis **5** except an outer peripheral portion **10** and formed as a space defined by a bottom face portion **11** extending in parallel to the outer peripheral portion **10** and a connecting portion **12** extending substantially perpendicularly to the outer peripheral portion **10** and the bottom face portion **11** and connecting the inner peripheral edge of the outer peripheral portion **10** and the outer peripheral edge of the bottom face portion **11** to each other.

The strength of the base chassis **5** can be raised by forming the base chassis **5** such that the outer peripheral portion **10** and the bottom face portion **11** are connected to each other by the connecting portion **12** extending perpendicularly to the outer peripheral portion **10** and the bottom face portion **11** in this manner.

Referring to FIG. **5**, the base chassis **5** is formed such that the thickness **T1** of the outer peripheral portion **10** is greater than the thickness **T2** of the connecting portion **12**. For example, the thickness **T1** of the electronic apparatus **1** is set to 5 mm, and the thickness **T2** of the connecting portion **12** is set to 2.4 mm.

Reduced thickness formation of the base chassis **5** can be achieved while high strength of the base chassis **5** is assured by setting the thickness **T1** of the outer peripheral portion **10** greater than the thickness **T2** of the connecting portion **12** in this manner.

Referring to FIG. **6**, the outer peripheral portion **10** of the base chassis **5** has an arrangement recess **10a** formed at a central portion thereof in the leftward and rightward direction in such a manner as to be open upwardly.

A shallow mounting recess **10b** is formed at a lower end portion of the outer peripheral portion **10** of the base chassis **5** such that it is open downwardly except the opposite left and right end portions of the outer peripheral portion **10**. Three holding recesses **10c** are formed at positions rather near to each of the left end and the right end of the mounting recess **10b** in such a manner as to open downwardly. The left and right holding recesses **10c** are formed in a spaced relationship from each other in the leftward and rightward direction.

A luminous lamp section **13** is formed at an upper end portion of a right end portion of the outer peripheral portion **10** of the base chassis **5**. The luminous lamp section **13** includes, for example, a lamp element indicative of a power supply state of the power supply. The luminous lamp section **13** is turned on when the power is supplied, but is turned off when the power is not supplied.

The luminous lamp section **13** is formed by forming a groove open rearwardly in the base chassis **5** as seen in FIG. **7**. As seen in FIGS. **6** and **7**, the luminous lamp section **13** includes an arcuate portion **14** having an arcuate shape and open upwardly, and a straight portion **15** extending upwardly and downwardly and positioned between the opposite ends of the arcuate portion **14**.

The arcuate portion **14** has an interior face portion **14a** inclined so as to be displaced forwardly in the upward direc-

6

tion while the groove of the arcuate portion **14** is formed such that the depth thereof increases in the upward direction as seen in FIGS. **7** and **8**.

The straight portion **15** has an interior face portion **15a** inclined so as to be displaced forwardly in the upward direction while the groove of the straight portion **15** is formed such that the depth thereof increases in the upward direction as seen in FIG. **7**. The groove at the lower end of the straight portion **15** is formed with a depth same as the depth of the groove at an upper end of a portion of the arcuate portion **14** which is positioned just below the straight portion **15**.

The interior face portions **14a** and **15a** of the arcuate portion **14** and the straight portion **15** are worked so as to have very small concave and convex configurations formed, for example, by embossing.

A device mounting board **16** is disposed below the luminous lamp section **13** as seen in FIGS. **7** and **9**. The device mounting board **16** is directed in the upward and downward direction and disposed in such a state that it is partly inserted in an upper side device arrangement hole **10d** (refer to FIG. **6**) formed in the base chassis **5**. The upper side device arrangement hole **10d** is formed on the immediately lower side of the luminous lamp section **13**.

For example, three first semiconductor light emitting elements **17** are carried in a leftwardly and rightwardly spaced relationship from each other on an upper face of the device mounting board **16** as seen in FIG. **9**. The first semiconductor light emitting elements **17** are positioned just below the device mounting board **16**. Among the first semiconductor light emitting elements **17**, for example, a central one emits orange light while the left and right ones emit green light.

Light **P1** (refer to FIG. **7**) emitted from the first semiconductor light emitting elements **17** is introduced to the interior face portions **14a** and **15a** of the luminous lamp section **13**. In this instance, the light **P1** is introduced uniformly into the interior face portions **14a** and **15a**, and this achieves a high incidence efficiency of the light. This is because the interior face portions **14a** and **15a** are inclined such that the depths of the grooves of the arcuate portion **14** and the straight portion **15** increase in the upward direction and the depth of the groove at the lower end of the straight portion **15** is formed with a depth same as the depth of the groove at an upper end of the portion of the arcuate portion **14** which is positioned just below the straight portion **15**.

When the light **P1** is introduced to the luminous lamp section **13**, it is reflected at random by the fine concave and convex configurations formed on the interior face portions **14a** and **15a** and then passes through the inside of the base chassis **5** from the luminous lamp section **13** until it is emitted forwardly from the base chassis **5**.

When the electronic apparatus **1** is in a normal operation mode, the light **P1** is emitted, for example, from the first semiconductor light emitting elements **17** positioned on the left and right positions, but when the electronic apparatus **1** is in a rest mode, the light **P1** is emitted from the centrally positioned first semiconductor light emitting element **17**.

Since the electronic apparatus **1** is configured such that the luminous lamp section **13** is provided on the base chassis **5** and the light **P1** emitted from the first semiconductor light emitting elements **17** is emitted through the luminous lamp section **13** as described above, enhancement of the visibility can be achieved while the simple structure that the luminous lamp section **13** is formed on the base chassis **5** is assured.

Referring to FIG. **6**, a pair of reflective lamp sections **18** is formed at a lower end portion of a right end portion of the outer peripheral portion **10** of the base chassis **5**. The reflective lamp sections **18** indicate, for example, a connection state

of a wireless LAN (Local Area Network) and an access state to a hard disk drive or the like. For example, the reflective lamp sections **18** emit light or blink when the wireless LAN is in a connected state or the hard disk drive is being accessed, but do not emit light when the wireless LAN is in a disconnected state or the hard disk drive is not being accessed.

Referring to FIG. **10**, each of the reflective lamp sections **18** is formed by forming a groove open rearwardly in the base chassis **5**.

Each of the reflective lamp sections **18** has an interior face portion **18a** which is inclined so as to be displaced rearwardly in the downward direction. The interior face portion **18a** of each of the reflective lamp sections **18** is also inclined so as to be displaced forwardly in the rightward direction as seen in FIG. **11**.

Each of the interior face portions **18a** of the reflective lamp sections **18** is formed as a mirror face. A second device mounting board **19** is disposed above the reflective lamp sections **18** and directed in the forward and rearward direction as seen in FIGS. **9** and **10**.

For example, two second semiconductor light emitting elements **20** are carried in a spaced relationship from each other in the leftward and rightward direction on a front face of the second device mounting board **19**. The second semiconductor light emitting elements **20** are disposed in a lower side element arrangement hole **10e** (refer to FIG. **6**) formed in the base chassis **5** and are individually positioned just above the reflective lamp sections **18** as seen in FIG. **10**. The lower side element arrangement hole **10e** is formed just above the reflective lamp sections **18**.

Light **P2** (refer to FIG. **10**) emitted from the second semiconductor light emitting elements **20** is introduced to the interior face portions **18a** of the reflective lamp sections **18**.

When the light **P2** is introduced to the reflective lamp sections **18**, it is reflected by the interior face portions **18a** and passes through the inside of the base chassis **5** from the reflective lamp sections **18** such that it is emitted forwardly from the base chassis **5**.

At this time, since the interior face portions **18a** of the reflective lamp sections **18** are inclined so as to be displaced forwardly in the rightward direction as described hereinabove, the light **P2** is reflected so as to be directed to the center side of the electronic apparatus **1**, that is, toward a normal line **H** (refer to FIG. **11**) which passes the center of the display unit **6**.

Accordingly, the light **P2** reflected by the reflective lamp sections **18** can be visually observed readily by the user of the electronic apparatus **1**. Thus, enhancement of the visual observability can be achieved while assuring the simple structure that the reflective lamp sections **18** are formed by forming the grooved configurations in the base chassis **5**.

Referring to FIG. **6**, speaker arrangement holes **11a**, a connection line threading hole **11b**, cooling air stream passing holes **11c** and so forth are formed at predetermined positions of the bottom face portion **11** of the base chassis **5**. Further, mounting bosses for fastening screws, positioning projections, positioning holes, mounting projections, mounting holes and so forth are formed at demanded positions of the bottom face portion **11** and the connecting portion **12**.

Referring to FIGS. **1** to **4**, the display unit **6** has a display panel **21** and a front panel **22**.

The display panel **21** may be, for example, a liquid crystal panel and has an outer profile a little smaller than that of the bottom face portion **11** of the base chassis **5**.

The front panel **22** is formed as a rectangular framework and has an outer profile a little greater than that of the bottom face portion **11** of the base chassis **5**.

The display panel **21** is inserted and disposed in the mounting recess **9** of the base chassis **5** and attached to the bottom face portion **11** of the base chassis **5** by suitable means such as fastening screws. The front panel **22** is attached to the base chassis **5** by suitable means such as fastening screws in a state wherein it covers the inner peripheral edge of the outer peripheral portion **10** from the front side in a state wherein the display panel **21** is attached to the base chassis **5**. The display panel **21** is held at the outer peripheral edge thereof from the front side by the front panel **22**.

When the display panel **21** is driven, heat is generated. The generated heat is transmitted to the rear face side of the base chassis **5** through the cooling air stream passing holes **11c** formed in the base chassis **5** and discharged to the outside through heat radiating holes not shown formed in the rear cover **8**. Accordingly, the temperature rise of the display panel **21** is suppressed.

The control circuit board **7** performs a control process of the entire electronic apparatus **1**. The control circuit board **7** includes a board **23**, and predetermined electronic parts **23a** such as a CPU (Central Processing Unit) and chip sets carried on the board **23** as seen in FIGS. **3** and **4**.

The control circuit board **7** is attached to a predetermined position of the second mounting face section **5b** which is the rear face of the base chassis **5** by suitable means such as fastening screws. In a state wherein the control circuit board **7** is attached to the second mounting face section **5b**, connection lines not shown extend through the connection line threading hole **11b** formed in the base chassis **5** and connect the display panel **21** and a panel driving circuit of the control circuit board **7** to each other.

Predetermined parts including a medium driving section **24** such as a disk drive or a card slot and a cooling fan **25** are attached to the second mounting face section **5b** of the base chassis **5** by suitable means such as fastening screws.

A pair of speakers **26** are inserted and arranged in the speaker arrangement holes **11a** formed in the base chassis **5** and attached to the base chassis **5** by suitable means such as fastening screws.

By inserting and attaching the speakers **26** in the speaker arrangement holes **11a**, the projection amount of the speakers **26** in the forward direction can be reduced thereby to achieve reduction of the thickness of the electronic apparatus **1** when compared with an alternative case wherein the speakers **26** are attached to the first mounting face section **5a** of the base chassis **5**.

In the state wherein predetermined parts such as the control circuit board **7**, medium driving section **24** and cooling fan **25** and requisite elements such as the speakers **26** are attached to the second mounting face section **5b** of the base chassis **5** as described above, the rear cover **8** is attached to the second mounting face section **5b** by suitable means such as fastening screws such that it covers the parts and the elements from rearwardly.

The rear cover **8** has a base portion **27** directed substantially in the forward and backward direction and a pair of projections **28** projecting forwardly from the opposite upper and lower edges of the base portion **27**. A plurality of heat radiating holes not shown is formed in the rear cover **8**.

A stand supporting portion **29** is provided at a substantially central portion of the base portion **27** as seen in FIG. **4**. A maintenance opening **27a** is formed in the base portion **27** on the lower side of the stand supporting portion **29**. The maintenance opening **27a** is opened or closed by a lid **30** removably mounted on the base portion **27**.

If the lid **30** is removed from the base portion **27** to open the maintenance opening **27a**, then the control circuit board **7** and

so forth are exposed, and consequently, maintenance of the control circuit board 7 and so forth can be performed.

A pair of side covers 31 is attached to the opposite left and right side portions of the rear cover 8.

As described hereinabove, the electronic apparatus 1 is configured such that requisite elements are attached to the first mounting face section 5a and the second mounting face section 5b of the base chassis 5 which is formed as a unitary member from a transparent material. Therefore, the configuration of the electronic apparatus 1 is simple, and also the number of parts is small and reduction of the man-hours for assembly can be achieved.

A holding member 32 is attached to a lower end portion of the base chassis 5 as seen in FIGS. 3 and 4. The holding member 32 is formed by bending a metal material in the form of a thin plate into a predetermined shape as seen in FIG. 12. Referring to FIG. 12, the holding member 32 has a lower wall portion 33 directed upwardly and downwardly, and a pair of projecting wall portions 34 projecting upwardly from the opposite front and rear edges of the lower wall portion 33. Three insertion holes 35 are formed at positions rather near to each of the opposite left and right ends of the lower wall portion 33. Each of the insertion holes 35 has a wide portion 35a and a narrow portion 35b having a forward and backward dimension than the wide portion 35a.

The holding member 32 is attached in such a manner as to cover the mounting recess 10b formed in the base chassis 5. In the state wherein the holding member 32 is attached to the base chassis 5, a fixed gap is defined between the lower wall portion 33 and the lower face of the base chassis 5 as seen in FIG. 13. In the state wherein the holding member 32 is attached to the base chassis 5, the narrow portions 35b of the insertion holes 35 are positioned just below the holding recesses 10c of the base chassis 5.

Referring to FIG. 12, a pair of placement pads 36 is attached to the holding member 32. Each of the placement pads 36 is formed as a unitary member from a material having elasticity such as a rubber material and has a placement face section 37 formed as a plate directed in the upward and downward direction, and held portions 38 projecting upwardly from the placement face section 37. The held portions 38 are provided in a spaced relationship from each other in the leftward and rightward direction. Each of the placement pads 36 has an inserted portion 38a, and a constricted portion 38b having a dimension in the forward and rearward direction smaller than that of the inserted portion 38a and extending downwardly from the inserted portion 38a. The forward and rearward dimension of the constricted portion 38b is substantially equal to the forward and backward dimension of the insertion holes 35 of the holding member 32.

Each of the placement pads 36 is attached to the holding member 32 in the following manner (refer to FIGS. 14 and 15).

First, in the state wherein the holding member 32 is attached to the base chassis 5 as seen in FIG. 13, the held portions 38 of the placement pad 36 are individually inserted into the wide portions 35a of the insertion holes 35 of the holding member 32, and the held portions 38 are pressed strongly against the lower face of the base chassis 5 from the lower side.

When the held portions 38 are pressed strongly against the lower face of the base chassis 5 from the lower side, they are resiliently deformed into a shape in which they are compressed in the upward and downward direction as seen in FIG. 14.

Then, if the placement pad 36 is slidably moved sidewardly in this state, then the constricted portions 38b are individually

inserted into the narrow portions 35b until the inserted portions 38a are individually positioned corresponding to the holding recesses 10c of the base chassis 5. Consequently, the held portions 38 are elastically placed out of the deformed state with the inserted portions 38a inserted in the holding recesses 10c (shown in FIG. 15) thereby to attach the placement pad 36 to the holding member 32.

The placement face sections 37 of the placement pads 36 attached to the insertion holes 32 contact, when the electronic apparatus 1 is placed on a receiving face of a desk or the like, with the receiving face.

In this manner, in the electronic apparatus 1, the holding member 32 is attached to a lower end portion of the base chassis 5 and the placement pads 36 having elasticity are attached to the holding member 32 such that, when the electronic apparatus 1 is placed on a receiving face such as the surface of a desk, the placement face section 37 contact with the receiving face. Therefore, stabilization of the placed state of the electronic apparatus 1 on the receiving face can be anticipated.

Further, since the placement pads 36 contact with the receiving face, otherwise possible damage to the receiving face or the lower end portion of the base chassis 5 can be prevented.

The stand 4 is supported for pivotal motion on the stand supporting portion 29 of the rear cover 8 by means of a pivoting mechanism 39.

Referring to FIGS. 16 and 17, the pivoting mechanism 39 includes a body side secured member 40 secured to the apparatus body 2, a pair of stand side secured members 41 secured to the stand 4, and a pair of pivot shafts 42 and 43 for connecting the body side secured member 40 and the stand side secured members 41 to each other.

The body side secured member 40 includes a secured plate 44, and a pair of bearing members 45 and 46 attached to a rear face of the secured plate 44. The bearing members 45 and 46 are positioned in a spaced relationship from each other in the leftward and rightward direction.

The secured plate 44 has a secured portion 44a secured in the inside of the apparatus body 2, and a pair of shaft supporting tabs 44b and 44c projecting rearwardly from the opposite left and right side edges of the secured portion 44a, respectively.

The bearing member 45 includes a mounted plate portion 45a attached to the secured plate 44, and a bearing portion 45b projecting rearwardly from one of the opposite side edges of the secured portion 44a.

The bearing member 46 includes a mounted plate portion 47 attached to the secured plate 44, a bearing portion 48 projecting rearwardly from one of the opposite side edges of the mounted plate portion 47, and a locking portion 49 provided on a right side face of the bearing portion 48.

Referring to an enlarged view of FIG. 18, the locking portion 49 has three controlling portions provided in a spaced relationship from each other in a circumferential direction and including a first controlling portion 50, a second controlling portion 51 and a third controlling portion 52 provided in order from above. The opposite side faces of the first controlling portion 50 in a circumferential direction are formed as a first controlling face 50a and a second controlling face 50b as seen in an enlarged view of FIG. 18. The first controlling face 50a is formed as an inclined face which is inclined toward the second controlling face 50b in the rightward direction. While the first controlling portion 50 and the second controlling portion 51 are positioned at the same position in the leftward and rightward direction, the third controlling portion 52 is

11

positioned rightwardly of the first controlling portion 50 and the second controlling portion 51.

The pivot shafts 42 and 43 extend in the leftward and rightward direction and are inserted in the shaft supporting tabs 44b and 44c of the secured plate 44 and supported for rotation around an axis thereof by bearing portions 45b and 48 of the bearing members 45 and 46, respectively as seen in FIGS. 16 and 17. In a state wherein the pivot shafts 42 and 43 are supported by the bearing portions 45b and 48, respectively, they partly project outwardly from the bearing portions 45b and 48, respectively.

The stand side secured members 41 in pair are attached to outer end portions of the pivot shafts 42 and 43 in the axial direction, respectively. Each of the stand side secured members 41 has a secured portion 41a, and a mounted tab 41b projecting forwardly from an inner side edge of the secured portion 41a. The stand side secured members 41 are secured at the secured portions 41a thereof in the inside of the stand 4 and attached at the mounted tabs 41b thereof to the pivot shafts 42 and 43.

A spring member 53 in the form of a coil spring is supported on each of the pivot shafts 42 and 43. Each of the spring members 53 is supported at an end portion thereof by the bearing portion 45b or 48 of the bearing member 45 or 46 and at the other end portion thereof by the mounted tab 41b of the corresponding stand side secured member 41. Accordingly, the stand side secured members 41 are acted upon by turning force in one direction (direction indicated by an arrow mark R1 in FIG. 17) around the axis of the pivot shafts 42 and 43, that is, in a direction in which the lower end portion of the stand 4 approaches the lower end portion of the apparatus body 2, with respect to the body side secured member 40 by the spring members 53.

A controlled member 54 is supported for movement in an axial direction along but against rotation around the axis on the pivot shaft 43 which is positioned on the left side.

Referring to FIG. 18, the controlled member 54 has a shaft fitting portion 55 formed in a substantially annular ring, and a projection 56 projecting leftwardly from part of an outer circumferential portion of the shaft fitting portion 55. A first controlled portion 56a and a second controlled portion 56b are provided in a projecting manner at a left end portion of an inner face of the projection 56. The first controlled portion 56a and the second controlled portion 56b are positioned in a spaced relationship from each other in a circumferential direction.

The pivot shaft 43 is fitted in the shaft fitting portion 55 such that the controlled member 54 is supported at a right end portion of the pivot shaft 43, that is, a portion of the pivot shaft 43 which projects rightwardly from the bearing member 46.

Since the controlled member 54 is supported against rotation around its axis on the pivot shaft 43, it is normally biased by the spring member 53 in a direction same as that of pivoting force applied to the pivot shaft 43 from the spring member 53.

A pivoting angle changing lever 57 is supported against rotation around the axis thereof but for movement in the axial direction on the pivot shaft 43 as seen in FIGS. 16 and 17.

The pivoting angle changing lever 57 has a base face portion 57a directed substantially in the upward and downward direction, an operated portion 57b projecting downwardly from the base face portion 57a, and a supported tubular portion 57c projecting upwardly from the base face portion 57a. The pivot shaft 43 is fitted in the supported tubular portion 57c such that the pivoting angle changing lever 57 is supported for rotation around the axis thereof and for movement in the axial direction on the pivot shaft 43. The supported tubular portion

12

57c of the pivoting angle changing lever 57 is positioned between the shaft fitting portion 55 of the controlled member 54 and the bearing portion 48 of the bearing member 46. The base face portion 57a and the operated portion 57b of the pivoting angle changing lever 57 are positioned on the lower side of the controlled member 54.

The pivoting angle changing lever 57 is mounted for movement between a first operation position which is the left end in the operation direction and a second operation position which is the right end in the operation direction. The operated portion 57b of the pivoting angle changing lever 57 is positioned outwardly of the stand supporting portion 29 of the rear cover 8 in such a manner as to allow manual operation thereof.

A stop ring 58 is secured to a right end portion of the pivot shaft 43. A biasing spring 59 in the form of a compression coil spring is supported between the stop ring 58 and the shaft fitting portion 55 of the controlled member 54. Accordingly, the controlled member 54 is biased in a direction toward the bearing portion 48 of the bearing member 46 by the biasing spring 59.

In the following, action of the pivoting mechanism and action of the stand 4 caused by the action of the pivoting mechanism are described with reference to FIGS. 19 to 30.

The angle over which the stand 4 can be pivoted with respect to the apparatus body 2 has two modes including a first mode and a second mode. The first mode is used when the electronic apparatus 1 is used normally as a personal computer, and the second mode is used when the electronic apparatus 1 is not used as a personal computer such as when the electronic apparatus 1 is carried or is subject to maintenance. In the first mode, for example, the stand 4 can be pivoted over a range from 30° to 60° (first pivotal motion permitting angle) with respect to the apparatus body 2. In the second mode, for example, the stand 4 can be pivoted over a range from 0° to 90° (second pivotal motion permitting angle) with respect to the apparatus body 2.

In the first mode, the controlled member 54 and the pivoting angle changing lever 57 are positioned at the left end of the movement range, that is, at the first operation position, by the biasing force of the biasing spring 59. Further, the shaft fitting portion 55 of the controlled member 54 is pressed against the base face portion 57a of the pivoting angle changing lever 57 from the right side, and the projection 56 of the controlled member 54 is pressed against the bearing portion 48 of the bearing member 46 from the right side.

In the first mode, when the pivoting angle of the stand 4 is 30°, the second controlled portion 56b of the controlled member 54 is engaged from above with the second controlling portion 51 of the locking portion 49 of the bearing member 46 as seen in FIG. 20, and the stand 4 is held at the position of 30° with respect to the apparatus body 2 as seen in FIG. 21.

At this time, the electronic apparatus 1 is placed on a receiving face 100 of a desk or the like in such a state that the placement pads 36 provided at the lower end portion of the base chassis 5 and the lower end of the stand 4 contact with the receiving face 100. It is to be noted that the electronic apparatus 1 may be modified such that the holding member 32 and the placement pads 36 attached to the holding member 32 are not provided but the electronic apparatus 1 is supported by the lower end of the base chassis 5 and the lower end of the stand 4 so as to be placed on the receiving face 100.

Since the electronic apparatus 1 is supported by the base chassis 5 and the stand 4 and placed on the receiving face 100 as described above, there is no necessity to provide another support for exclusive use on the base chassis 5. Consequently, reduction of the number of parts and simplification of the structure can be anticipated.

If, in the first mode, the apparatus body **2** is tilted such that, for example, the pivoting angle of the stand **4** with respect to the apparatus body **2** increases from 30° , then the pivot shafts **42** and **43** are rotated in the direction indicated by an arrow mark **R2** in FIG. **20** against the biasing force of the spring members **53**. Thereupon, the controlled member **54** is rotated together with the pivot shaft **43** simultaneously.

The controlled member **54** can be rotated until the first controlled portion **56a** thereof reaches the second controlling face **50b** of the first controlling portion **50** of the locking portion **49**. Such a state that the first controlled portion **56a** reaches the second controlling face **50b** of the first controlling portion **50** as seen in FIG. **22** is the state wherein the pivoting angle of the stand **4** with respect to the apparatus body **2** is 60° as seen in FIG. **23**.

On the contrary, if, in the first mode, the apparatus body **2** is tilted such that the pivoting angle of the stand **4** with respect to the apparatus body **2** decreases from 60° , then the pivot shafts **42** and **43** are rotated in the direction indicated by the arrow mark **R1** in FIG. **22** by the biasing force of the spring members **53**. Thereupon, the controlled member **54** is rotated integrally with the pivot shaft **43** simultaneously. At this time, since the stand **4** is biased in a direction in which the lower end portion thereof approaches the lower end portion of the apparatus body **2**, the stand **4** is pivoted following up the change of the angle of the apparatus body **2** while it is held in contact with the receiving face **100**. Accordingly, there is no necessity to manually pivot the stand **4** in a direction in which the lower end portion of the stand **4** approaches the apparatus body **2** after angular adjustment of the apparatus body **2** is performed. Consequently, enhancement of the convenience can be achieved.

In the first mode, the pivoting angle of the stand **4** can be changed over the angle from 30° to 60° as described above. At this time, while the biasing force in the direction indicated by the arrow mark **R1** is normally applied from the spring members **53** to the stand **4** through the pivot shafts **42** and **43**, since, in the electronic apparatus **1**, the force originating from the frictional force between the stand **4** and the receiving face **100** and the self weight of the electronic apparatus **1** and applied to the receiving face **100** is set so as to overcome the biasing force of the spring members **53**, the stand **4** can be held at an arbitrary angle within the range from 30° to 60° described hereinabove without slipping on the receiving face **100**.

If, in the state wherein the pivoting angle of the stand **4** with respect to the apparatus body **2** is held within the range from 30° to 60° , the pivoting angle changing lever **57** is operated so as to move rightwardly from the first operation position to the second operation position, then the second mode is established (refer to FIG. **24**).

The second mode is used when the electronic apparatus **1** is not used or upon maintenance of the electronic apparatus **1**. Therefore, the second mode is normally set in a state wherein the electronic apparatus **1** is not placed on the receiving face **100** using the stand **4**, for example, in a state wherein the electronic apparatus **1** is placed on the receiving face **100** such that the display unit **6** contacts with the receiving face **100** as seen in FIG. **25**.

When the pivoting angle changing lever **57** is moved rightwardly, the shaft fitting portion **55** of the controlled member **54** is pressed by the base face portion **57a** of the pivoting angle changing lever **57** to move the controlled member **54** rightwardly.

If the pivoting angle changing lever **57** is moved to the second operation position, then the first controlled portion **56a** and the second controlled portion **56b** of the controlled member **54** are moved to positions thereof spaced rightwardly

from the first controlling portion **50** and the second controlling portion **51** of the locking portion **49**, respectively. Therefore, in a state wherein the stand **4** is not grasped, the controlled member **54** is rotated in the direction of the arrow mark **R1** by the biasing force of the spring member **53** until the second controlled portion **56b** is contacted with and pressed against the third controlling portion **52** of the locking portion **49** as seen in FIG. **26**.

If, in the state wherein the second controlled portion **56b** contacts with the third controlling portion **52**, the manual operation of the pivoting angle changing lever **57** is canceled, then leftwardly moving force is applied from the biasing spring **59** to the controlled member **54** to move the projection **56** until the second controlled portion **56b** is pressed from sidewardly against the second controlling portion **51** of the locking portion **49**. Accordingly, the pivoting angle changing lever **57** is held at the second operation position.

The state wherein the second controlled portion **56b** contacts with the third controlling portion **52** of the locking portion **49** is the state wherein the pivoting angle of the stand **4** is 0° as seen in FIG. **27**. In the state wherein the pivoting angle of the stand **4** with respect to the apparatus body **2** is 0° , the stand **4** does not project in an oblique direction from the apparatus body **2**. Therefore, for example, when the electronic apparatus **1** is carried, the stand **4** does not make an obstacle, and consequently, the convenience in carrying and so forth can be enhanced.

It is to be noted that, while the second controlled portion **56b** of the controlled member **54** contacts with and is pressed against the third controlling portion **52** of the locking portion **49** to hold the stand **4** at the pivoting angle of 0° , it is otherwise possible, for example, for the stand **4** to contact with the rear face **2a** of the apparatus body **2** to hold the stand **4** at the pivoting angle of 0° .

Since the stand **4** is held at the pivoting angle of 0° by the contact of the stand **4** with the rear face **2a** of the apparatus body **2** in this manner, reduction of the number of parts and simplification of the mechanism can be achieved without the necessity for a control section for exclusive use for holding the stand **4** at the position of 0° .

If the stand **4** is pivoted in a direction in which the pivoting angle of the stand **4** with respect to the apparatus body **2** increases from the state wherein the pivoting angle of the stand **4** is 0° , then the second controlled portion **56b** of the controlled member **54** is brought into sliding contact with the right side face of the second controlling portion **51** of the locking portion **49**. Then, when the second controlled portion **56b** is displaced from the second controlling portion **51**, the controlled member **54** is moved leftwardly by the biasing force of the biasing spring **59**. By the leftward movement of the controlled member **54**, the supported tubular portion **57c** of the pivoting angle changing lever **57** is pressed leftwardly by the shaft fitting portion **55** so that the pivoting angle changing lever **57** is moved from the second operation position to the first operation position.

In this manner, when the stand **4** is pivoted from the position of 0° , the pivoting angle changing lever **57** is moved from the second operation position to the first position by the biasing spring **59**. Therefore, there is no necessity to perform a manual operation to move the pivoting angle changing lever **57** from the second operation position to the first operation position. Consequently, enhancement of the operability can be anticipated.

When the pivoting angle changing lever **57** is moved to the second operation position, the first controlled portion **56a** and the second controlled portion **56b** of the controlled member **54** are moved to positions thereof spaced rightwardly from the first

15

controlling portion **50** and the second controlling portion **51** of the locking portion **49**, respectively. Consequently, it is possible to grasp the stand **4** to pivot the stand **4** to the position of 90° in a direction in which the lower end portion of the stand **4** is spaced away from the lower end portion of the apparatus body **2**.

If the stand **4** is pivoted to the position of 90° and then the manual operation of the pivoting angle changing lever **57** held at the second operation position is canceled, then the controlled member **54** and the pivoting angle changing lever **57** are moved leftwardly by the biasing force of the biasing spring **59**. Consequently, the pivoting angle changing lever **57** is moved from the second operation position to the first operation position.

When the controlled member **54** is moved leftwardly, the first controlled portion **56a** is positioned on the upper side of the first controlling portion **50** of the locking portion **49**. At this time, if the manual pivoting action of the stand **4** is canceled, then the pivoting force to urge the stand **4** to pivot in a direction toward the position of the pivoting angle of 0° is applied to the stand **4** by the biasing force of the spring members **53**. Consequently, the stand **4** is pivoted until the first controlled portion **56a** is pressed against and engaged with the first controlling face **50a** of the first controlling portion **50** as seen in FIG. **28**. Accordingly, the stand **4** is held at the position at which the pivoting angle thereof with respect to the apparatus body **2** is 90° as seen in FIG. **29**.

In the state wherein the pivoting angle of the stand **4** with respect to the apparatus body **2** is 90° , the stand **4** does not make an obstacle to an opening or closing action of the lid **30** to open or close the maintenance opening **27a** of the rear cover **8**. Consequently, the opening or closing operation of the lid **30** can be performed readily.

Further, also upon maintenance through the maintenance opening **27a**, the stand **4** does not make an obstacle. Consequently, the maintenance can be performed readily.

If, in the state wherein the pivoting angle of the stand **4** with respect to the apparatus body **2** is held at 90° , the pivoting angle changing lever **57** is operated to move rightwardly from the first operation position to the second operation position, then the first mode can be established.

When the pivoting angle changing lever **57** is moved to the second operation position, the first controlled portion **56a** of the controlled member **54** slidably moves on the first controlling face **50a** of the first controlling portion **50** of the locking portion **49** as seen in FIG. **30**. At this time, the first controlled portion **56a** of the controlled member **54** remains pressed against the first controlling face **50a** by the biasing force of the spring members **53**. However, since the first controlling face **50a** is formed as an inclined face, the controlled member **54** and the pivoting angle changing lever **57** are smoothly moved rightwardly and the first controlled portion **56a** and the first controlling face **50a** are brought out of contact with each other.

Accordingly, the operation to move the pivoting angle changing lever **57** from the first operation position to the second operation position can be performed smoothly.

When the contact between the first controlled portion **56a** and the first controlling face **50a** is canceled, if the manual operation of the pivoting angle changing lever **57** is canceled, then leftward moving force is applied to the controlled member **54** from the biasing spring **59**. Consequently, the controlled member **54** and the pivoting angle changing lever **57** are moved leftwardly integrally with each other. When both of the first controlled portion **56a** and the second controlled portion **56b** of the controlled member **54** are positioned between the first controlling portion **50** and the second con-

16

trolling portion **51** of the locking portion **49** and the controlled member **54** is rotated by the biasing force of the spring member **53**, the second controlled portion **56b** is brought into contact and engagement with the second controlling portion **51** thereby to stop the rotation of the controlled member **54** as seen from FIG. **19**.

Consequently, the first mode is established, and the stand **4** is held in the state of the pivoting angle of 30° with respect to the apparatus body **2** as seen in FIG. **21**. The pivoting angle changing lever **57** is held at the first operation position as seen in FIG. **19**.

As described above, in the electronic apparatus **1**, changeover between the first mode and the second mode can be performed by operating the pivoting angle changing lever **57**. Consequently, the electronic apparatus **1** can be used as a personal computer normally. On the other hand, when the electronic apparatus **1** is not used as a personal computer, for example, when the electronic apparatus **1** is carried or upon maintenance of the electronic apparatus **1**, the suitable mode therefor can be set readily.

Further, since, in the second mode, the angle of the stand **4** with respect to the apparatus body **2** can be changed from 0° to 90° , a work necessary for the electronic apparatus **1** such as carrying or maintenance can be performed readily without any trouble.

A camera unit **60** is disposed in the outer peripheral portion **10** of the base chassis **5** as seen in FIGS. **1** to **4**. The camera unit **60** is, for example, for a visual telephone and is supported for pivotal motion on the base chassis **5** through a pivot shaft, which extends leftwardly and rightwardly, by means of a hinge mechanism not shown. The pivotal motion permitting angle of the camera unit **60** with respect to the base chassis **5** is, for example, $\pm 10^\circ$ with respect to a reference position, and the camera unit **60** can be held at an arbitrary angle within the range of the pivotal motion permitting angle thereof.

An image pickup lens **60a** is provided on the front face of the camera unit **60**. The angle of view of the image pickup lens **60a** is, for example, 55° (refer to FIG. **31**). The direction of the optical axis of the image pickup lens **60a** is set in the following manner.

Referring to FIG. **31**, in a standard use state when a user **101** uses the electronic apparatus **1**, usually the height of a chair **102** is 40 cm; the height of a desk **103** is 70 cm; and the height of the eyes of the user **101** from the floor **104** is 120 cm.

The display face of the display panel of the electronic apparatus **1** placed on the desk **103** is inclined at an angle of 25° with respect to the vertical direction, and the user **101** visually observes the display face of the display panel at an angle of 85° .

The direction S of the optical axis of the image pickup lens **60a** at the reference position of the camera unit **60**, that is, in the reference state, is set to a little downward direction, for example, by 7° with respect to the normal line L to the display panel **21**. Accordingly, the camera unit **60** is mounted for pivotal motion within a range of $\pm 10^\circ$ with reference to the state thereof wherein it is inclined downwardly by 7° .

Where the camera unit **60** is disposed, at the reference position, in a downwardly inclined relationship by a little angle, for example, by 7° with respect to the normal line L in this manner, the face of the user **101** is likely to be reflected at a central portion of the display screen of an apparatus of the opposite party, for example, in a visual telephone system. Consequently, the convenience in use of the electronic apparatus **1** when it is used in a visual telephone system or the like can be enhanced.

17

Further, in the electronic apparatus **1**, since the camera unit **60** is mounted for pivotal motion with respect to the base chassis **5**, the position at which an image is reflected can be adjusted.

It is to be noted that the forward, rearward, upward, downward, leftward and rightward directions in the foregoing description are used for the convenience of description, and the present invention can be applied irrespective of the directions.

While a preferred embodiment of the present invention has been described using specific terms, such description is for illustrative purposes only, and it is to be understood that changes and variations may be made without departing from the spirit or scope of the following claims.

What is claimed is:

- 1.** An electronic apparatus, comprising:
 - a base chassis formed as a unitary member from a transparent material and including two faces positioned on the opposite sides of the base chassis from each other and individually formed as a first mounting face section and a second mounting face section;
 - a display unit including a display panel thereon and attached to said first mounting face section of said base chassis;
 - a control circuit board attached to said second mounting face section of said base chassis;
 - a rear cover attached to said second mounting face section of said base chassis and configured to cover said control circuit board;
 - wherein the display unit and the rear cover are smaller than the base chassis so that at least a part of the base chassis is not covered by both the display unit and the rear cover, and the surface of the display unit extends farther forward than that of the base chassis, and
 - the base chassis extends below the display unit and rear cover to support the weight of the display unit and rear cover.
- 2.** The portable electronic apparatus according to claim **1**, further comprising:
 - a device mounting board having a semiconductor light emitting element disposed thereon; and

18

a luminous lamp section formed at a position of said base chassis on the outer side of said display unit and configured to receive and emit light having been emitted from said semiconductor light emitting element and passed through the inside of said base chassis.

- 3.** The electronic apparatus according to claim **1**, wherein a groove is formed on said base chassis such that an interior face portion thereof serves as said luminous lamp section, and said luminous lamp section is formed so as to be inclined with respect to the light path of incoming light to said luminous lamp section and is so shaped as to increase the depth of said groove away from said semiconductor light emitting element.
- 4.** The portable electronic apparatus according to claim **1**, further comprising:
 - a device mounting board having a semiconductor light emitting element disposed thereon; and
 - a reflecting lamp section formed at a position of said base chassis on the outer side of said display unit and having an inner face which reflects light having been emitted from said semiconductor light emitting element and passed through the inside of said base chassis; said reflecting lamp section being inclined in a direction in which the light reflected by said reflecting lamp section is introduced in a direction toward a normal line which passes the center of said display panel.
- 5.** The portable electronic apparatus according to claim **1**, further comprising:
 - a camera unit disposed in the outer peripheral portion of the base chassis.
- 6.** The portable electronic apparatus according to claim **5**, wherein the camera unit is supported for pivotal motion on the base chassis through a pivot shaft, which extends leftwardly and rightwardly, and the camera unit can be held at an arbitrary angle within the range of the pivotal motion permitting angle thereof.
- 7.** The portable electronic apparatus according to claim **1**, wherein the base chassis includes two projections extending from a bottom portion of the base chassis.

* * * * *